

EDUCATIONAL HANDWORK

A Complete and Varied Course for Schools

WILLIAM TAYLOR

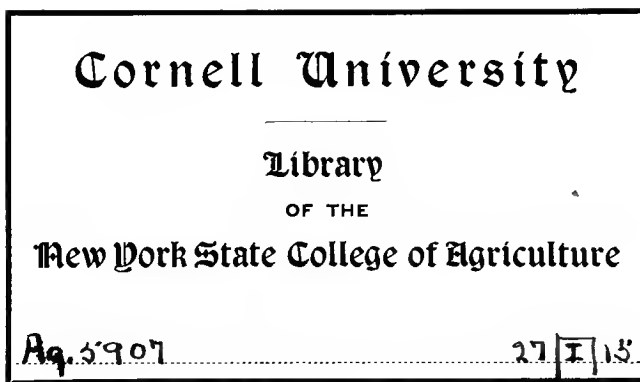
Book I. for Juniors

LONDON

A. BROWN & SONS LTD., 5, FARRINGTON AVENUE, E.C.

AND AT HULL AND YORK

@
LB1598
T2



3778

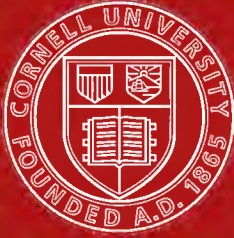
Cornell University Library
LB 1598.T2

Educational handwork; a complete and vari



3 1924 013 100 080

maani



Cornell University
Library

The original of this book is in
the Cornell University Library.

There are no known copyright restrictions in
the United States on the use of the text.

<http://www.archive.org/details/cu31924013100080>

EDUCATIONAL HANDWORK

EDUCATIONAL HANDWORK

A Complete and Varied Course for Schools

BY

WILLIAM TAYLOR

Headmaster, Higher Rural School, North Somercotes

Instructor to the Lindsey Handicraft Classes for Teachers, etc.

Book I. for Juniors

LONDON :

A. BROWN & SONS, LTD., 5 Farringdon Avenue, E.C.

AND AT HULL AND YORK.

L.L.

@
LB1598
T2

A9.5907

PRINTED AT BROWNS' SAVILE PRESS,
SAVILE STREET AND GEORGE STREET, HULL.

*[Introductory Letter from Walter Birkett, Esq., Inspector of Schools
to the Lindsey County Council Education Committee].*

BRIER LEA,
CARLINE ROAD,
LINCOLN.

July 18th, 1911.

DEAR MR. TAYLOR,

I have been much interested in looking through the manuscript of your book on "Educational Handwork." You have treated this most important branch of school work in a thoroughly comprehensive and practical manner, and I can well imagine the delight with which numbers of children will follow the varied courses you have provided.

The book is being produced at a most opportune time, as nearly all education authorities are realising that the admirable training which may be obtained from a fuller and more systematic use of "hand and eye" has been too long delayed. On all sides there are signs of a great awakening to the possibilities which such a course of work provides, and it must be gratifying to you—one who has been in the van of the movement in this part of England—to note how the system is spreading. In this country we have been slow to recognise the value of training our boys and girls to be handy, quick, accurate, and observant; and the results of the experiment in *practical* instruction which has been in operation under the Lindsey County Council for nearly two years amply justify the inclusion of Educational Handwork in the schemes of instruction in both Elementary and Secondary Schools.

When it is realised that the large majority of those who are educated in our Elementary Schools will have to support themselves by some form of Manual Labour, the folly of pursuing a course which is calculated to foster a dislike for such labour is apparent. Moreover, expert medical and scientific opinion emphasises the fact that it is very difficult to obtain manual dexterity of a high order in the case of persons who have not been trained, *early in life*, to make good use of their fingers and hands.

My own experience of recent years confirms most strongly my view that Educational Handwork ought to take a prominent place in our educational system, and I have been particularly interested in noting the effect which varied forms of handwork have had on children who are considered to be dull at their ordinary lessons. We all realise that there are numbers of children who will always fail to benefit, in any marked degree, from what is sometimes called "book-learning." These same children frequently exhibit wonderful dexterity and originality when dealing with Manual Subjects, and the knowledge that they can do *something* passably well has a marked moral effect upon them. If this were *the only* result to be gained by adopting a good system of handicraft, the inclusion of this work in our school schemes is more than justified.

I need not say more, except to thank you for giving me this opportunity of publicly expressing my opinion on the value of this subject, in which I take such a keen interest. I am sure you will be gratified if one of the results of your labours is to extend the practice of Manual Work in our schools, and of this result I have little doubt.

Yours very truly,

WALTER BIRKETT,

*Inspector of Schools to the Lindsey
County Council Education Committee.*

PREFACE

In the preparation of this work, the main features that have been kept in view are :—

- 1.—Consideration for the teachers who have to deal with the schemes.
- 2.—Consideration for Education Authorities who introduce and support Manual Training.
- 3.—Consideration for the children who have to construct the various models.

Consideration for Teachers.

This naturally comes first, for any success attained in the various subjects comprising “Hand Work” depends primarily on the teacher. The consideration referred to takes the following form :—

- (a) Each model is dealt with in the book in such a way that the teacher need waste no time in finding out what he requires to know before taking any particular lesson. In other words, the amount of written matter is reduced to a minimum.
- (b) As will be seen, the lessons are not arranged in such a way that all the work is done for the teacher. Some books dealing with the various branches of Manual Training supply even the questions the teacher is required to ask the children. This is making the teacher into a “machine.” Besides, the teacher best knows how he can make the manual work help the formal work of his class.
- (c) As far as possible, models are arranged so that others may be added or substituted. It is hoped that the exercises will prove suggestive, and a help to teachers in making up their own schemes.

Consideration for Education Authorities.

These bodies should be considered, because they provide the funds which are so necessary. In the preparation of the schemes in this book, *saving of expense* has been kept well in view. We *must* prevent unnecessary expenditure, otherwise the result will be the death-blow of “Educational Hand-Work for the Standards” in its youth, if not in its infancy.

Consideration for Children.

Although placed last, the children should be the *first* consideration of the teacher. The chief suggestion made to those who have the care of the children is that the tools used for the practical work should be simple, and, if possible, such as the children may readily obtain for themselves, so that (if they wish) they will be able to extend their practical work at home.

Again, in the interests of the children, we should be careful not to do too much for them. They will make better progress if they have to overcome their own difficulties than is possible if all obstacles are removed.

Another point we must keep constantly before us is, that the children must be allowed full opportunity of developing their own individuality. One way of helping to bring this about is to provide opportunity for original work. The quicker children will finish their models, perhaps, ten or fifteen minutes ahead of their fellows. Such pupils should always have at hand a piece of material with which to "work out their own ideas." Occasionally, all the children should be required to attempt original work.

The various schemes outlined in this book make it possible to carry out all the suggestions given.

Advice relative to all the Schemes.

I.—The teacher is advised to construct models for any scheme he intends to teach. Thus he will get a clear grasp of the difficulties his scholars are likely to be confronted with. The models, when so completed, should be kept as a set for reference or exhibition, to be afterwards replaced, one by one, by the best products of the children's labour. This has the additional advantage of giving the children something to strive for.

II.—The procedure adopted in dealing with the different models should be varied as much as possible. The following are given as suggestions :—

- (a) One time let the children work from a blackboard diagram, giving all dimensions, at the same time showing them the completed model.
- (b) With another exercise, adopt the above procedure without showing the completed model.
- (c) At another time, let the children work from a blackboard diagram, which gives no measurements. (Making the model from given dimensions may then be taken as a supplementary exercise).

- (d) As another alternative, let the children's work be based on a complete model, without the help of a diagram. [Variety of procedure, such as has been suggested, should help to foster original work on the part of pupils. Note that in some of the schemes—*e.g.*, Plasticine Work and Nature Work in Paper—the work must be done direct from the object, or, occasionally, from memory].

III.—Where an Introduction to a Scheme is given, read it carefully, for frequently the correct interpretation of diagrams depends upon the instructions given therein.

Apparatus.

In connection with this Manual, the author can confidently recommend from personal experience the Apparatus described on page xiv.

Educational Handwork throughout the School.

As readers will see, Book I. provides a complete and varied course of Handwork for both boys and girls in the Junior portion of the school, following immediately on the Kindergarten teaching received by the children in the Infant School. This work will be extended in Book II., which will contain schemes in Paper Work, Thin-Cardboard Work, Thick-cardboard work, Plasticine Work, Light Woodwork, etc., etc., for boys and girls in the Senior portion of the school. Although each book will be complete in itself, it must be understood that the work provided therein is but a "means to an end." To obtain the maximum amount of benefit from such a course of Hand and Eye Training, this teaching must be supplemented by some form of education *closely connected with the industries of the locality.*

In the case of town schools, this higher work should be of such a nature that it will form a perfect foundation for the teaching already provided in local Technical Schools and Continuation Classes, which cater especially for the industries carried on in the neighbourhood. Hence each town, or group of towns, will have its own particular scheme of "Supplementary Handwork."

In country districts, the work following that outlined in "Educational Handwork," Books I. and II., should have a distinct "rural bias," for obviously those children who are allowed to stay at a rural school beyond the usual leaving age do so in order *to extend their knowledge of rural subjects.* "Educational Handwork," Book III., will deal in detail with work suitable for this purpose, and in it the author proposes to show how the school-work

of country children may be extended so as to fit them for their work in connection with rural pursuits, or for *continuing their education* at a Farm School or Agricultural College, if they or their parents desire the latter course. In this way a course of education will be arranged which will lead, in continuous steps, from the Infant School to the highest branches of Rural Education provided by Local Authorities or the Board of Education. Since our country's welfare is so dependent upon agricultural prosperity, an arrangement of this nature must result in future benefit, not to our rural population only, but to the nation as a whole.

Arrangement of Schemes for the various Standards.

For a "good school," the following division will be found practicable. For weaker schools, the same work should be spread over Standards I. to IV. At first some of the schemes may seem difficult for the class arranged for; this may be so during the first year of the adoption of Manual Work, but the difficulty will not exist when the work has been going on for some time.

Standard I.

- (i.) Paper Work, Scheme I. (Page 17).
- (ii.) Plasticine Work, Scheme I. (Page 116).
- (iii.) Nature Work in Paper, Scheme I. (Page 148).
- (iv.) Drawing of Natural Objects, with crayon-colouring, in association with (ii.) and (iii.).
- (v.) Drawing and crayon-colouring of designs to pave the way for Designing in Paper [see Standard II. (v.)].
- (vi.) Strip-paper Work, to serve as a foundation for Strip-cardboard Work [see Standard II. (iv.)].

Standard II.

- (i.) Paper Work, Scheme II. (Page 30).
- (ii.) Plasticine Work, Scheme II. (Page 124).
- (iii.) Nature Work in Paper, Scheme II. (Page 152).
- (iv.) Strip-cardboard Work, Scheme I. (Page 70).
- (v.) Designing in Paper, Scheme I. (Page 158).
- (vi.) Drawing of Natural Objects, with crayon-colouring.

Standard III.

- (i.) Paper Work, Scheme III. (Page 48).
- (ii.) Plasticine Work, Scheme III. (Page 130).
- (iii.) „ „ „ IV. (Page 137).
- (iv.) Nature Work in Paper, Scheme III. (Page 155).
- (v.) Strip-cardboard Work, Scheme II. (Page 82).
- (vi.) Designing in Paper, Scheme II. (Page 166).
- (vii.) Thin-cardboard Work, Scheme I. (Page 101).
- (viii.) Drawing from Nature, with the help of crayon or water-colour.
- (ix.) Drawing in relation to (iii.) and (v.).

The author is deeply indebted to W. Birkett, Esq., Inspector of Schools to the Lindsey County Council Education Committee, for his kindness in writing an Introductory Letter to this book, and for many valuable suggestions relating to the Schemes.

CONTENTS

	PAGE
PAPER WORK—	
SCHEME I.	17
SCHEME II.	30
SCHEME III.	48
STRIP-CARDBOARD WORK—	
SCHEME I.	70
SCHEME II.	82
THIN-CARDBOARD WORK—	
SCHEME I.	101
PLASTICINE WORK—	
SCHEME I.	116
SCHEME II.	124
SCHEME III.	130
SCHEME IV.	137
NATURE WORK IN PAPER—	
SCHEME I.	148
SCHEME II.	152
SCHEME III.	155
DESIGNING IN PAPER—	
SCHEME I.	158
SCHEME II.	166

BROWNS' SELECTED LIST OF APPARATUS FOR EDUCATIONAL HANDWORK

* These items are recommended by the Author for carrying out the work described in this Manual.

Scissors.

Net School Prices.

*Browns' H 221	Best Steel Scissors, pointed, $5\frac{1}{2}$ "	..	..	..	4/6 per doz.
*Browns' H 224	do. round ends, $4\frac{1}{2}$ "	..	..	..	4/6 „
*Browns' H 225	do. pointed, $4\frac{1}{2}$ "	..	..	..	3/6 „

Rulers.

Browns' H 228	Safety Straight Edge Steel Ruler, 12", fitted with guard to prevent cutting of fingers	..	..	..	1/- each.
*The Patent Non-Slip	Safety Ruler	..	..	..	4/6 per doz.
*Browns' H 229	Boxwood Scale Rulers, 9" or 12", English and Metric Markings	..	..	..	9d. per doz.
*Brown's H 230	Brass Ruler, marked 8ths and 16ths	..	..	..	6/- per doz.
*Browns' Steel Ruler,	English and Metric Markings 12"	..	..	..	1/- each

Set Squares.

*Browns' Hardwood Set Squares,	45°	..	..	..	.. 7d. per doz.
*Browns' do.	60°	..	..	..	.. 7d. „

Scoring Knife.

*Browns' "Special" Boxwood Scoring Knife for Paper Work	..	1/8 per doz
(Should be sharpened, occasionally, on fine sand-paper).		

Modelling Tool.

*Browns' "Special" Boxwood Modelling Tool, with round knob at one end, and flat curve at the other, as illustrated on p. 116	1/8 per doz.
--	--------------

Modelling Boards.

*Browns' Modelling Boards, 3 ply Hardwood, 11" x 7"	..	3/- per doz
*Browns' Modelling Boards, Greaseproof one side and marbled paper the other, 10" x 8"	..	1/- per doz.

Punch.

*Browns' "Special" Punch for making small circular holes in paper, etc.	1/3 each
---	----------

Cartridge Paper, Cardboard, etc.

*Browns' "Special" Cartridge Paper, plain, 11" × 7"	..	7½d.	per pkt. of 100
*Browns' do. do. 30" × 22"	..	1/-	per qr.
*Brown's "Special" Thin Cardboard, assorted colours, 25" × 20"	1/6	per doz. shts.	
*Browns' "Special" 8 sheet Cardboard, white, 30" × 22"	2/6	"	"
* Do., in strips, ¼" wide and 15" long	..	7½d.	per 100
* Do., do. ¾" do.	..	7½d.	"
* Do., do. ½" do.	..	7½d.	"
* Do., do. ¾" do.	..	10d.	"
* Do., do. 1" do.	..	10d.	"
*Browns' H 97 Paper Squares, assorted colours, 4" × 4", glazed	..	5d.	"
*Browns' H 98 do. do. unglazed	..	4d.	"
*Browns' H 99 do. gummed one side	..	6d.	per 100
*Browns' H 100 Paper Rectangles, 5½" × 2¾", assorted colours	..	4d.	"
*Browns' H 101 "Liberty" Art Paper (Assorted Dark Shades)			
in packets of 250, 6" × 6"	..	1/3	per packet
*Browns' H 102 do., 7" × 7"	..	2/-	"
*Browns' H 103 do., 8" × 8"	..	2/6	"
*Browns' H 104 "Liberty" Art Paper, 25" × 20", red, green,			
terra-cotta, brown, stone, drab	..	1/9	per quire
Browns' H 105 Thin Carton Paper (Assorted Colours), in			
packets of 250, 4" × 4"	..	10d.	per packet
Browns' H 106 do., 5" × 5"	..	1/3	"
Browns' H 107 do., 6" × 6"	..	2/-	"
Browns' H 108 do., 7" × 7"	..	2/4	"
Browns' H 109 do., 8" × 8"	..	2/9	"
Browns' H 110 Thin Carton Paper Sheets, 25" × 20", grey, pink,			
blue, green, salmon,	..	2/-	per quire
Browns' H 113 Tinted Cardboard (Assorted Colours), in			
packets of 250, 6" × 6"	..	2/6	per packet
Browns' H 114 do., 7" × 7"	..	4/9	"
Browns' H 115 do., 8" × 8"	..	5/-	"
Browns' H 116 Tinted Cardboard, Royal (20" × 25"),	..	1/6	per doz. sheets

Binding Paper and Cloth.

Browns' H 118 Gummed Paper for Binding, Demy (17½" × 22"),			
assorted shades	..	1/-	per quire
Browns' H 119 Gummed Binding Cloth, in different shades	..	1/6	per yard
Browns' H 120 Gummed Binding Cloth, in strips ½" × 12"	..	1/-	per 100
*Browns' H 121 Gummed Binding Cloth, in strips 1" × 12"	..	1/9	"
Browns' H 122 Fancy Covering Papers, 30" × 20"	..	1/6	per quire

Plasticine.

- *Harbutts' Plasticine, grey, green, red or yellow 1/- per lb.
- *Browns' " Savile " Modelling Box, size 5"×4"×1", enables each child to retain its own box and portion of Plasticine—made of golden tin, with spaces for name and class on the hinged lid, and edges carefully turned in 3/- per doz.
- *The above box may also be had fitted with 4 ozs. of Plasticine and Modelling Tool 5/- „

Adhesives.

- *Mordan's Double Strength Liquid Gum 1/- per bottle
- *Browns' Holdfast White Gum 2d. „
- *Browns' Kwikstic—a powerful adhesive 1d. per tube

PAPER WORK. Scheme I.

Introduction to Scheme.

Tools.—Each child should be supplied with a *good* ruler (with perfect inch-divisions), a properly-sharpened pencil, and a pair of scissors. If funds are restricted, one pair of scissors should be made to suffice for two scholars. As Scheme I. will be worked by *young* children, the scissors should have rounded “points” to minimise the risk of accidents.

Material.—Waste paper, such as “used” drawing book leaves or covers, will suffice. The best material for the work, however, is ordinary drawing paper, which may be obtained in sheets, 11 in. by 7 in.

Procedure.—For the first two or three lessons the paper may be cut by the teacher to the size required for the children to fold. After this, however, the children should be required to do all the work themselves, the paper supplied being larger than the model requires, and perfectly rectangular. One edge of the paper should be used for the base of the square or rectangle required for the model, the sides of the figure being then drawn parallel to the sides of the paper.

The general outline of a lesson should be —

- (i.) Examination of (a) blackboard diagram, and (b) finished model, under the teacher’s supervision.
- (ii.) Planning-out and drawing on paper the square or rectangle which forms the basis of the model.
- (iii.) Drawing (or folding) other lines required for the construction of the diagram.
- (iv.) Cutting away that portion of the paper which is not required.
- (v.) Comparing children’s “products” with original model.

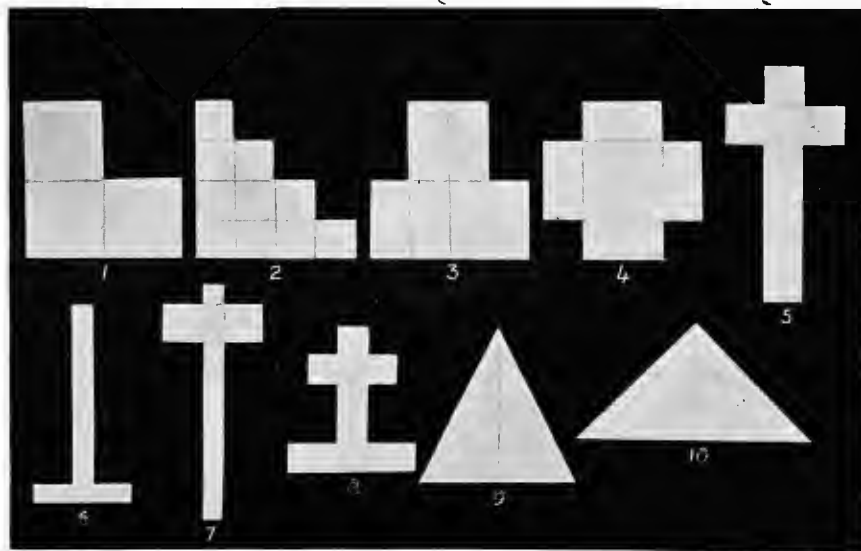
- (vi.) Teacher's criticism of the result, including any incidental teaching which the diagram or the model may be utilised for. (A slight guide to incidental teaching is given in connection with Models 1, 2, 9, and 20).

Interpretation of Diagrams in this Scheme.

- (a) All lines are "drawing (or folding) lines."
 (b) Continuous lines (thus —————) are "cutting lines."

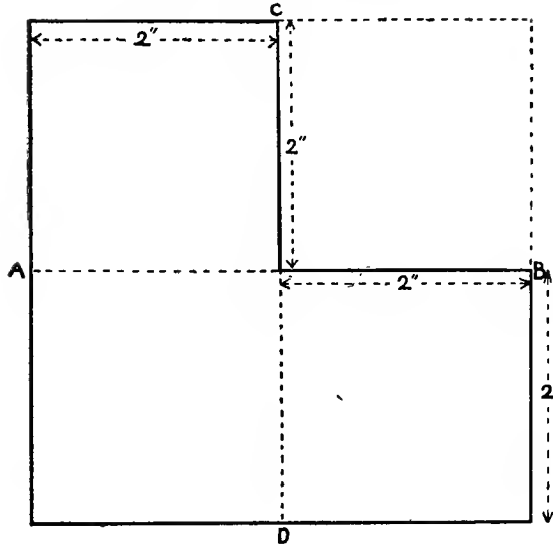
Original Work and Supplementary Work.—Let children make :—

- (a) Similar objects.
 (b) The same object a different size.
 or (c) The same object in a different way (drawing and folding are suggested as alternatives).



Models 1 to 10.

Figure 1. Two Steps.



From a 4" square (which should be supplied).

Procedure.

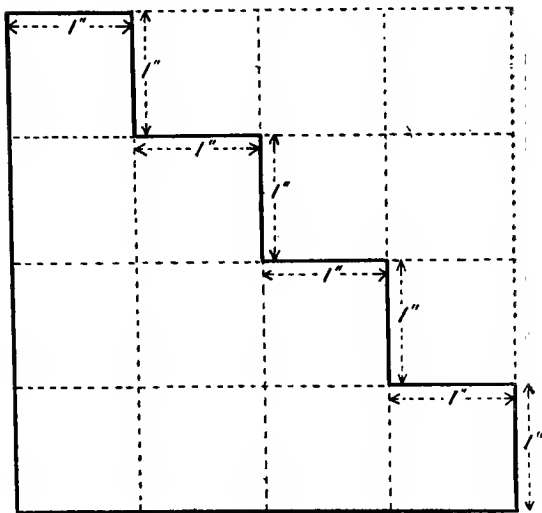
Fold along CD, then open out and fold along AB. Cut out the portion not required.

Incidental Teaching.

- (a) Properties of a square and a rectangle.
- (b) Meaning of *inch*—measurement of sides of given square.
- (c) Meaning of half, quarter, three-quarters, etc. A *whole* is made up of two halves, or of four quarters. One quarter taken from a *whole* leaves three-quarters.

Additional Exercise.

Produce the same figure without folding. Find the middle point of each side, *draw* AB and CD, and cut out as before.

Figure 2. Four Steps.

From a 4" square (which may be supplied).

Procedure.

Fold as in Figure 1. Then open out, and fold from top and bottom to the middle, then from each side to the middle, so as to make 16 squares. Cut out portion not required.

Incidental Teaching.

Meaning of one-sixteenth, three-sixteenths, etc.

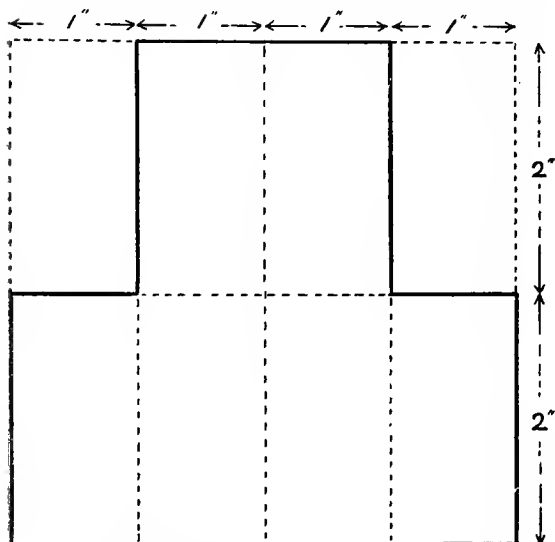
One-half = eight-sixteenths ; one-quarter = four-sixteenths, etc.

Meaning of "square inch" ; a 4" square is made up of 16 square inches, and so on.

Additional Exercise.

The same figure made by *drawing* instead of *folding*.

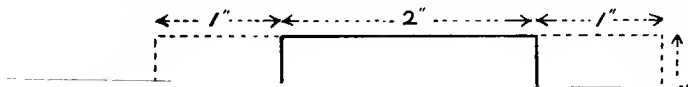
Figure 3. A Square with Rectangles built on its sides.



From a 4" square.

The children should prepare the square themselves. This plan should be adopted in dealing with all future models (See "Procedure" in Introduction to Scheme).

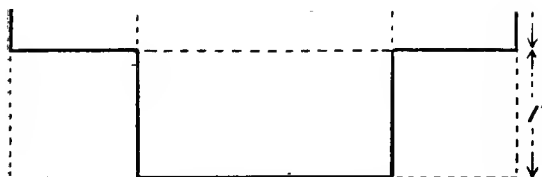
Figure 4. A Square resting on a Rectangle.



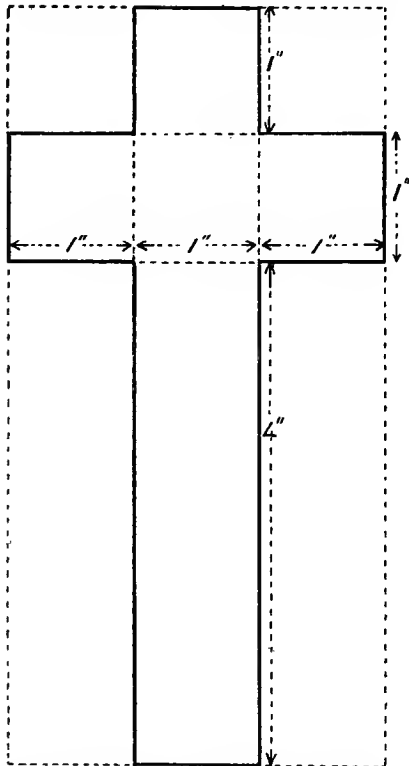
ERRATA.—Page 21.

Fig. 3 *should read* "A Square resting on a Rectangle."

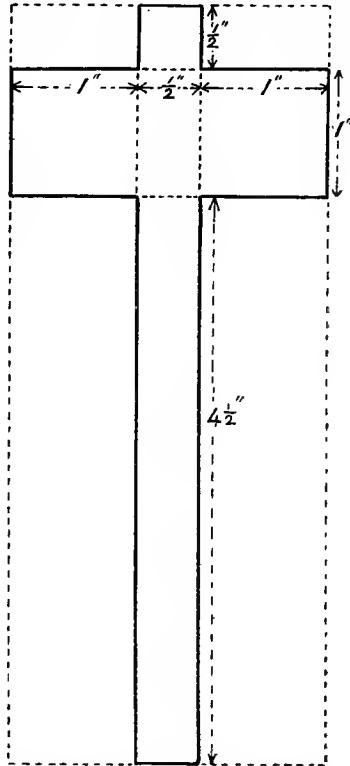
" 4 " " " "A Square with Rectangles built on its sides."



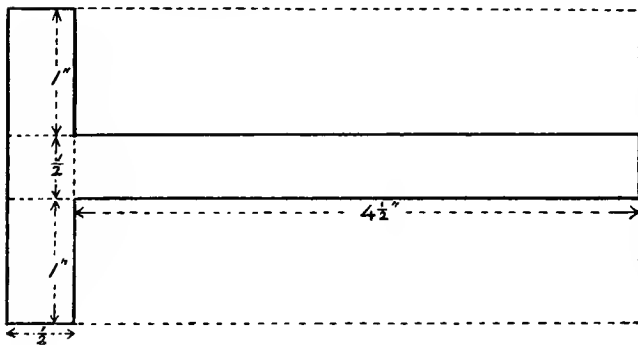
From a 4" square.

Figure 5. A Latin Cross.

Children should first draw and cut a rectangle 6" by 3"

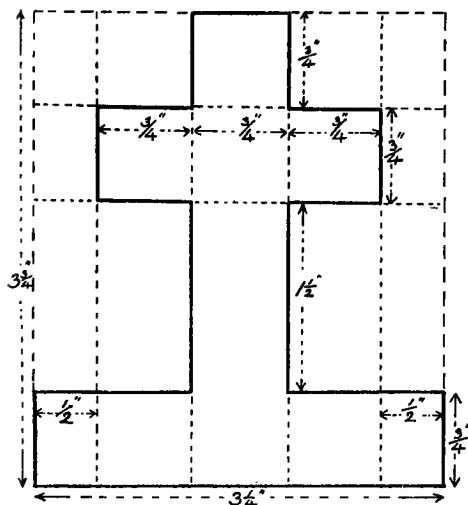
Figure 7. A Notice Board.

From a rectangle 6" by 2½"

**Figure 6.
A T-Square.**

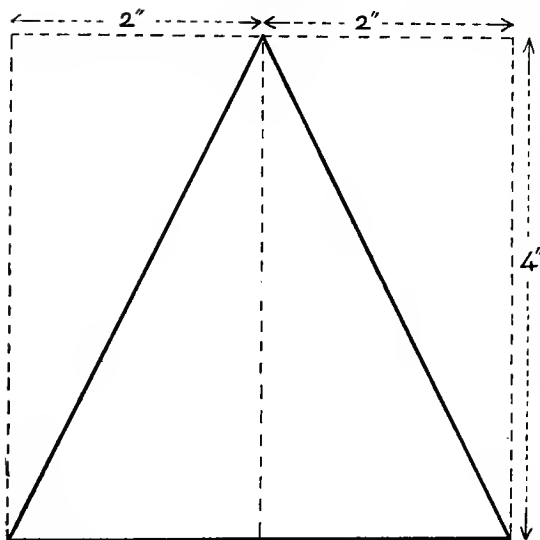
From a rectangle 5" by 2½"

Figure 8. A Cross with Base.



From a rectangle $3\frac{3}{4}$ " by $3\frac{1}{4}$ ".

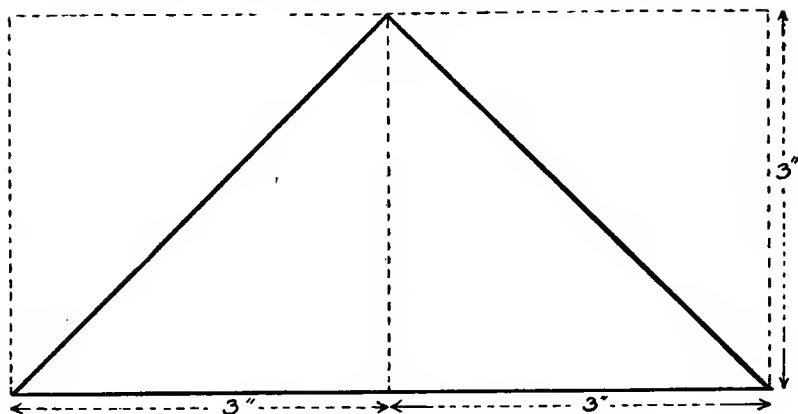
Figure 9. An Isosceles Triangle.



From a 4" square.

Incidental Teaching.

Properties of a triangle. Kinds of triangles. Diagonal. Portion cut off exactly covers portion left; hence the triangle is half as large as the square. Fold the isosceles triangle so as to make two right-angled triangles.

Figure 10. A Right-angled Isosceles Triangle.

From a rectangle 6" by 3".

Additional Exercises.

- (a) Place the three triangles so as to form a square.
- (b) Fold the large right-angled triangle so as to make two right-angled isosceles triangles, and repeat with triangle thus formed.

**Models 11 to 20.**

Figure 11. A Kite.

From a rectangle $5\frac{1}{2}"$ by $4"$.

Incidental Teaching.

Show that the four right-angled triangles cut off exactly cover the portion left ; hence show that Figure 11 is a combination of figures 9 and 10

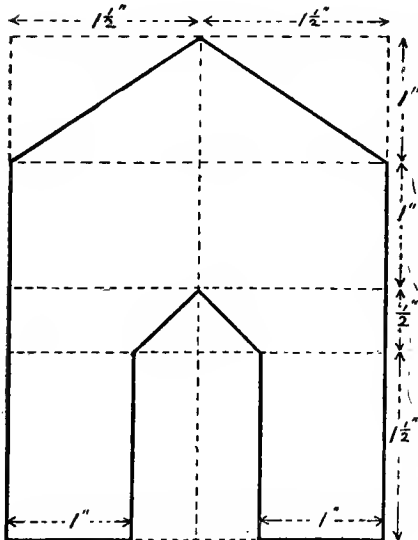
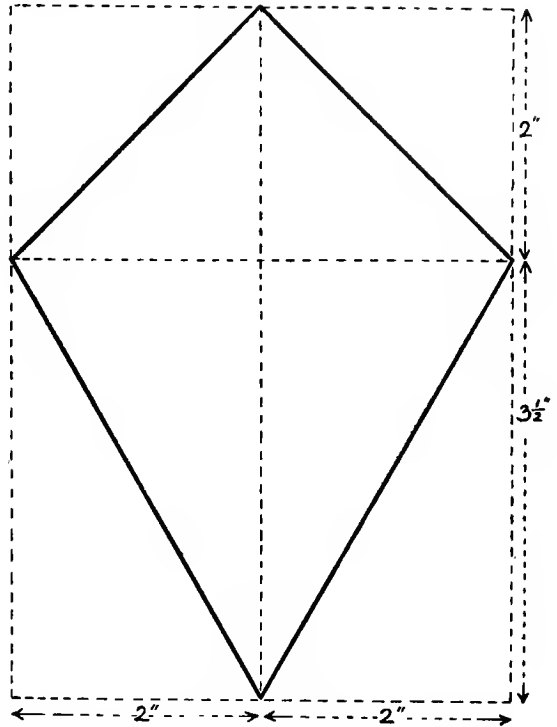


**Figure 12.
Front of Shed or Dog
Kennel.**

From a rectangle $4"$ by $3"$.

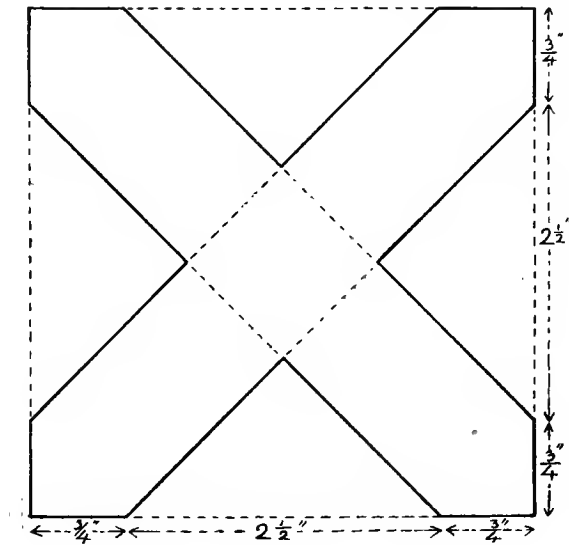


Figure 13.
A Diagonal Cross.

From a 4" square.

Figure 14. A Bottle.

From a rectangle 6" by 3".

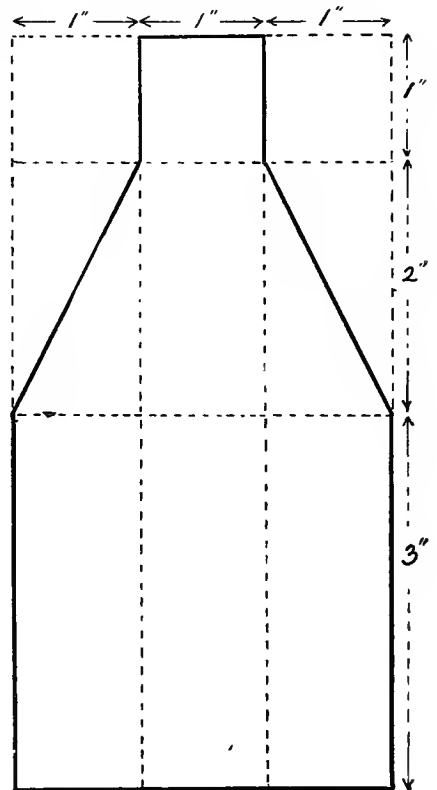


Figure 15.

**Two Overlapping
Squares.**

From a $4\frac{1}{2}$ " square, each
side being divided into
6 equal parts (each $\frac{3}{4}$ ").

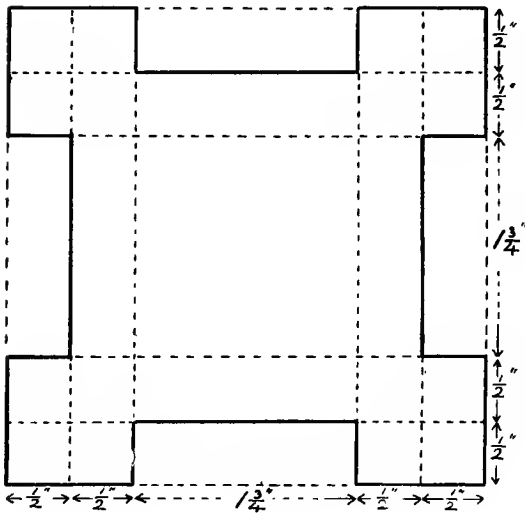
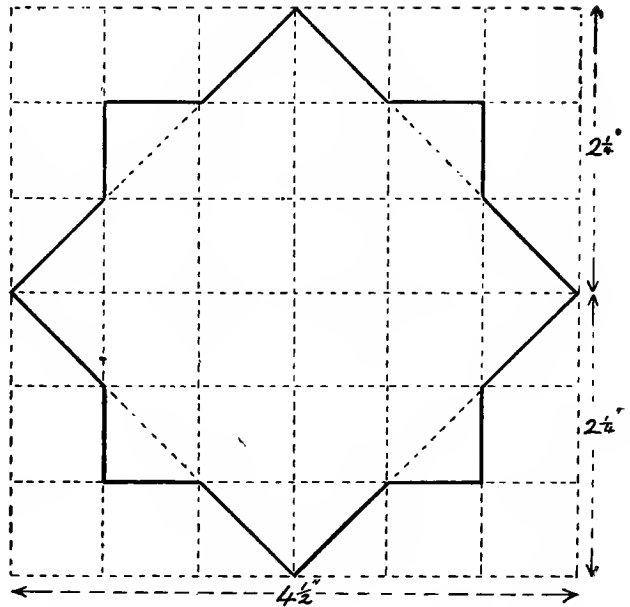
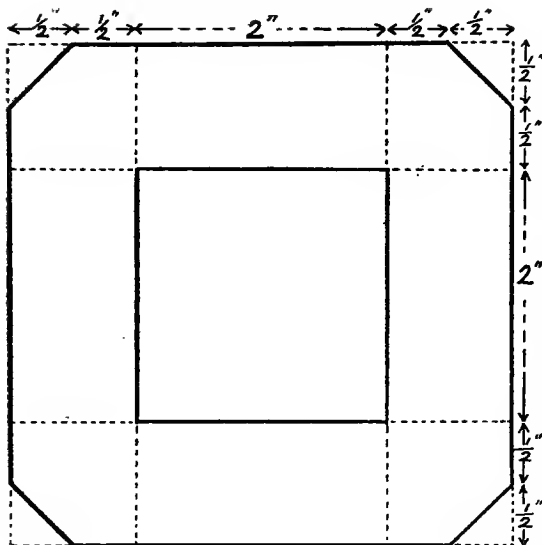


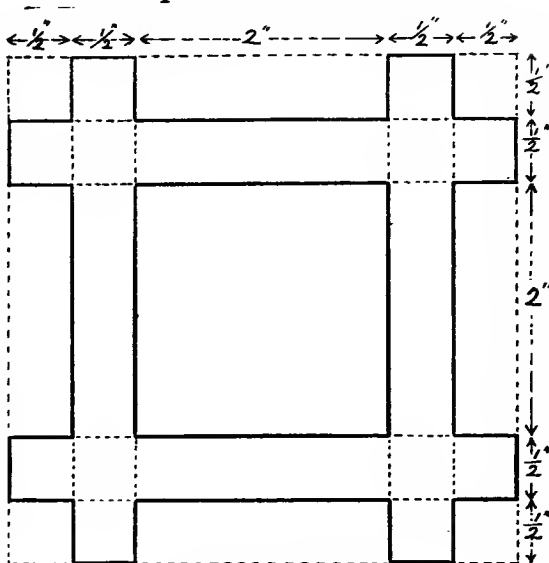
Figure 16.
A Photograph Mount.

From a $3\frac{3}{4}$ " square.

Figure 17. A Photo Frame.

From a 4" square.

In cutting out the centre square, pierce a hole near the middle of the paper, and work outwards to the sides of the square.

Figure 18. A Square Oxford Frame.

From a 4" square.

Cut out centre square as indicated in Model 17.

Figure 19.

A Rectangular Oxford Frame.

From a rectangle $5\frac{1}{2}"$ by $4"$.

Inner rectangle to be cut out as indicated in Model 17.

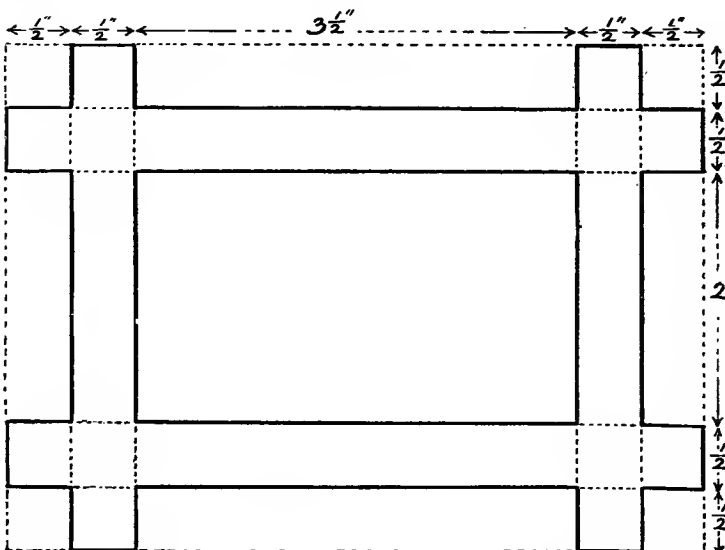


Figure 20.
A Six-pointed Star.
(See also Fig. 20a).

From a 4" square.

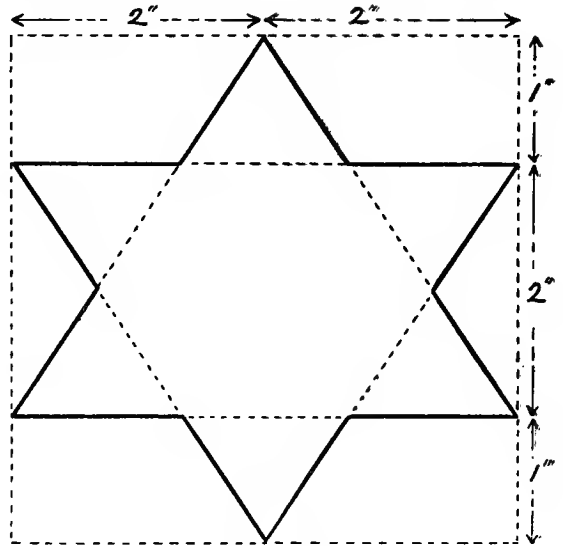


Figure 20a.
A Six-pointed Star, with
equal-sized "points."

(An additional exercise based on Figure 20).

Procedure.

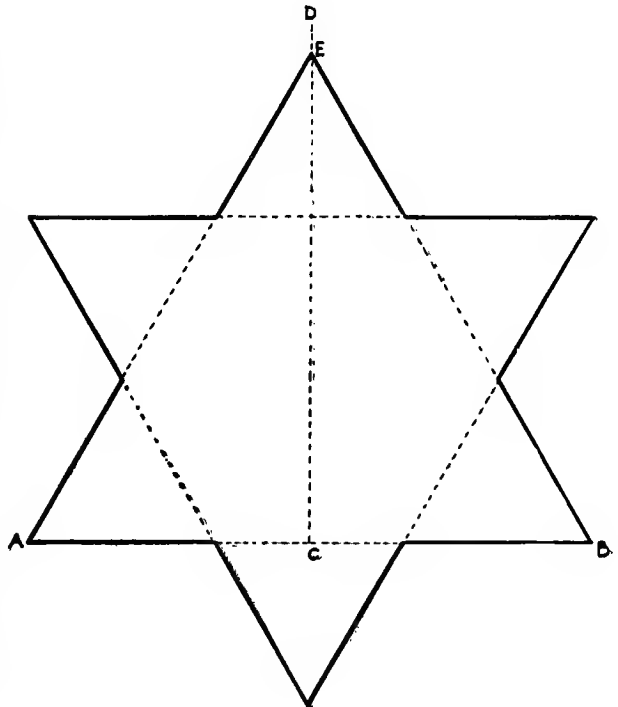
Construct AB, $4\frac{1}{2}$ " long. Divide it into three equal parts, and also in the middle (C). Draw CD at right angles to AB.

Place the ruler in such a position that a line (AE) may be drawn, from A to this perpendicular, $4\frac{1}{2}$ " long. Join EB. This gives an equilateral triangle. Divide the remaining two sides each into three equal parts. The completion of the figure is then simple.

Incidental Teaching.

Properties of a Hexagon (the inner figure).

Show that a Regular Hexagon is made up of six equilateral triangles. (This may be done by drawing, and also by folding).



PAPER WORK. Scheme II.

Introduction to Scheme.

Tools.—A good ruler, a sharp pencil, a pair of scissors, and a scoring-knife should be supplied to each child. For scoring, a box-wood clay-modelling tool (see Apparatus page) will suffice. Each pair of children should have a bottle of gum, with brush. For class use a punch, for making circular holes, should be provided.

Material.—Drawing paper, which is supplied in sheets, 11" by 7".

Procedure.—A half-sheet or whole sheet of drawing paper (dependent upon the size of the model), should be supplied to each child, who should do the whole of the work necessary.

The general outline of a lesson should be :—

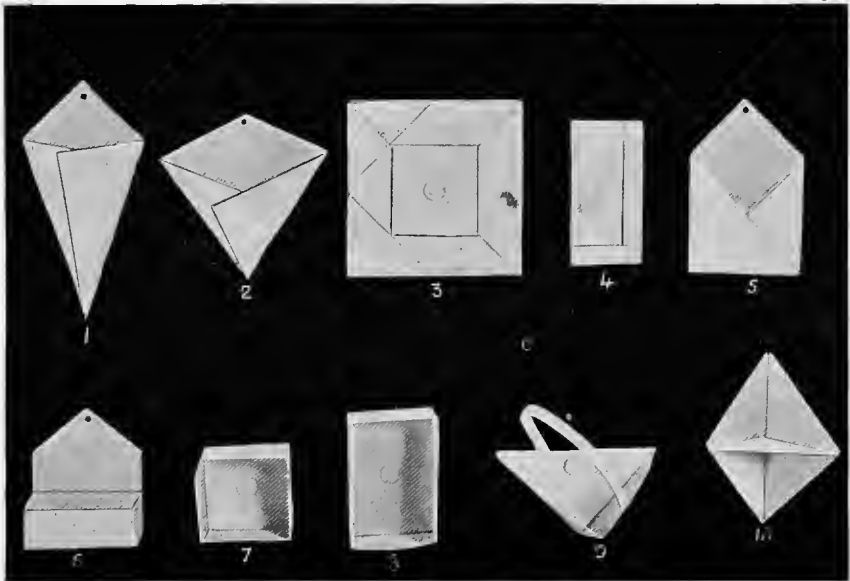
- (i.) Examination of blackboard diagram and a completed model.
- (ii.) Planning out and drawing the diagram.
- (iii.) Cutting out paper not required for the model.
- (iv.) " Scoring " the paper along lines where folds are to be made. By scoring is meant making a groove or half-cut ; this ensures a neater fold. A blunt pen-knife makes a good scoring tool. Failing other things, scoring may be done with the point of the scissors. *N.B.*—The scored line should be on the *outside* of the fold.
- (v.) Gumming where necessary. Right from the beginning, children should be taught that the less gum used, the better will be the adhesion. All surplus gum should be *wiped* off the brush on the inside of the bottle-neck, before applying to the paper.
- (vi.) Folding to complete the model.

- (vii.) Comparison of children's models with the original.
- (viii.) Teacher's criticism of the result, including any incidental teaching which the diagram or the model may be utilised for.

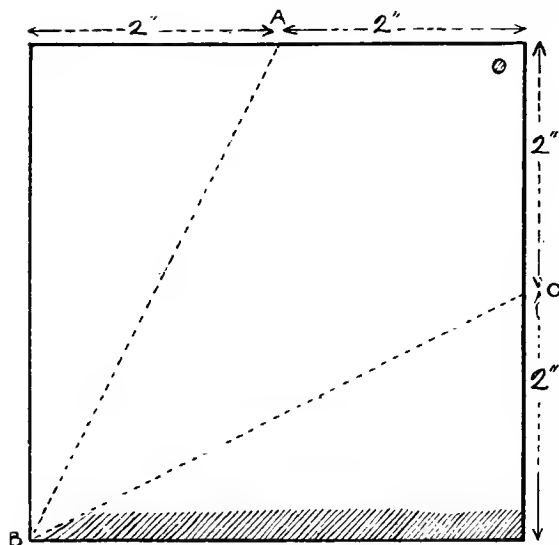
Interpretation of Diagrams in this scheme.

- (a) All lines are to be drawn.
- (b) Continuous lines (thus —————) are "cutting lines."
- (c) Dotted lines (thus) *left on the model after cutting-out*, are "folding lines." *Backward folds*, where they occur, are mentioned in the notes on the model.
- (d) Places for gum are indicated in the diagrams by means of shading-lines.

Original and Supplementary Work.—See Introduction to Scheme 1.

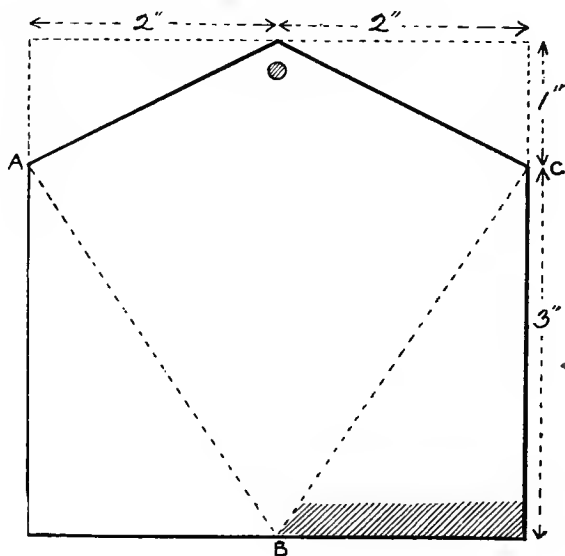


Models 1 to 10.

Model 1. A Wall Pocket.

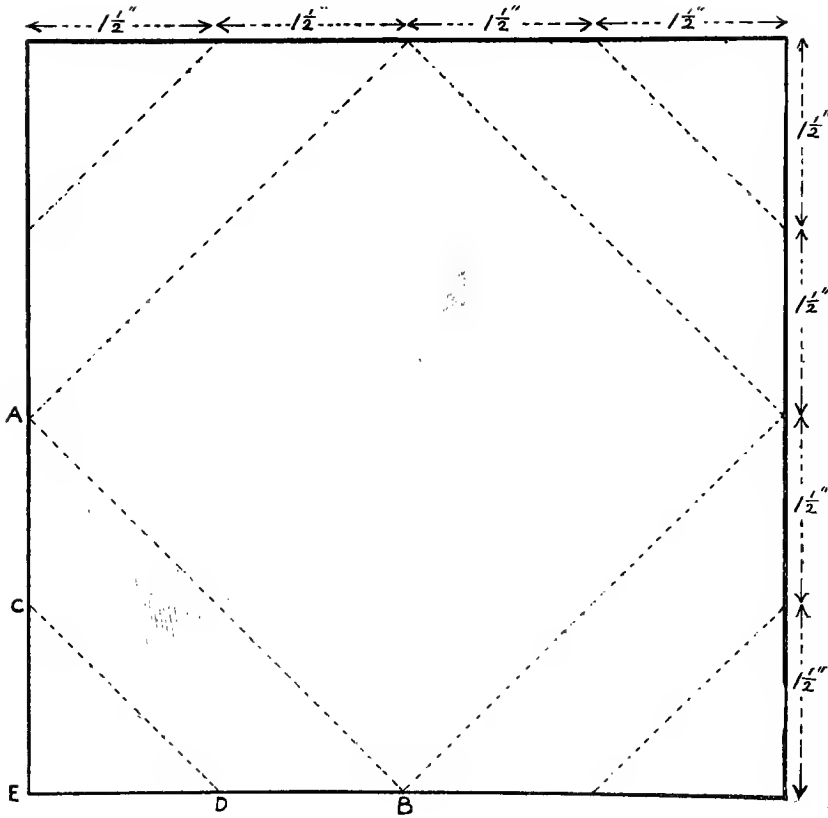
From a 4" square.

Fold along AB first, then along BC. Open out, gum, fold again, and hold in position until firmly secured. Punch a hole for hanging.

Model 2. A Wall Pocket.

From a 4" square.

Fold along AB first, then along BC. Complete as for Model 1.

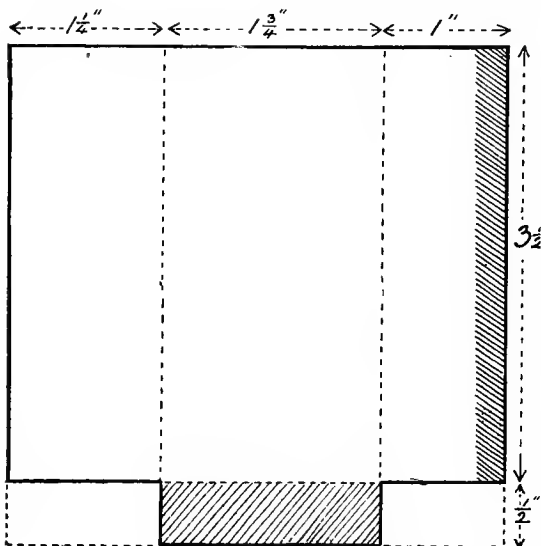
Model 3. A Folded Photo Frame.

From a 6" square.

Fold along AB upward, and in the *reverse* direction along CD.

Repeat with the other corners.

On the four corner triangles (*e.g.*, CED), which show to the front when folded, designs may be drawn or painted. Another effect may be produced by crayon-colouring, one colour for CED, and another for ACDB (reverse side).

**Model 4. A Paper Bag.**

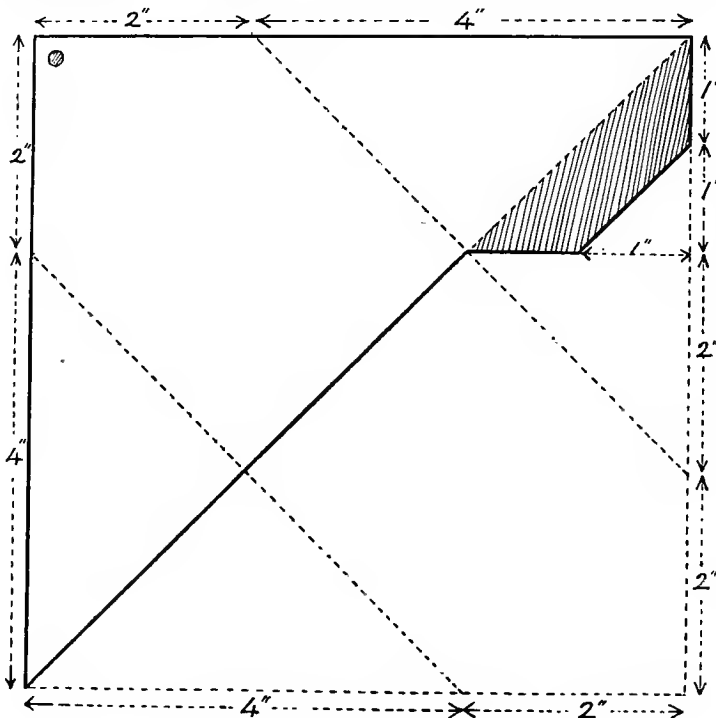
From a 4" square.

Fold left-hand part first, then right-hand part. Gum overlapping portion. Also gum portion turned up at bottom, which should be folded last.

Model 5. A Wall Pocket.

From a 6" square.

Fold left-hand triangle, then right-hand triangle; extra piece then left below should be gummed to back of model. Punch a hole for hanging.

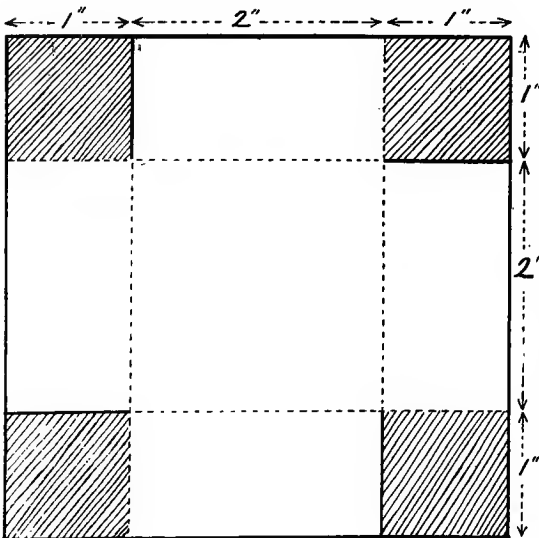
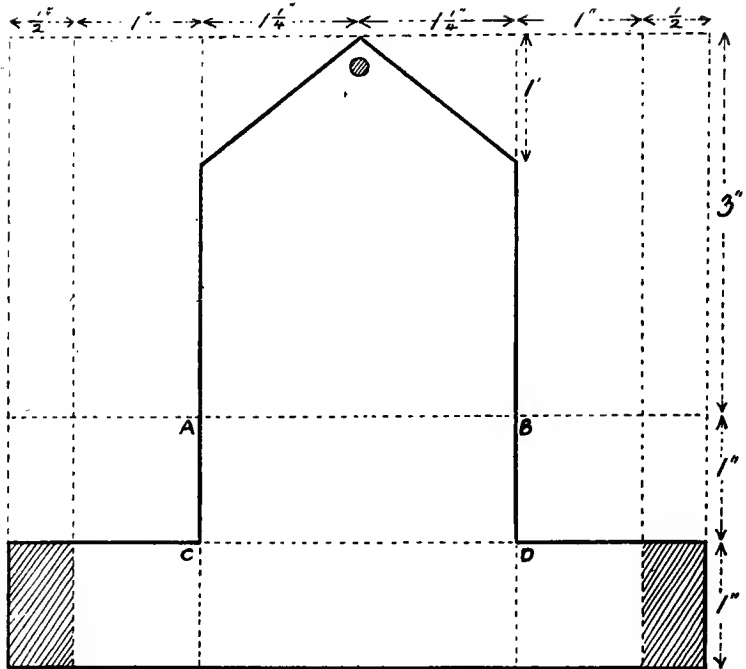


Model 6.

A Hanging Bracket.

From a rectangle
5½" by 5".

Fold first
along AB, then
along CD. Then
fold the "sides"
back and fix in
position. Punch
a hole for hang-
ing.



Model 7.

A Square Tray or Box.

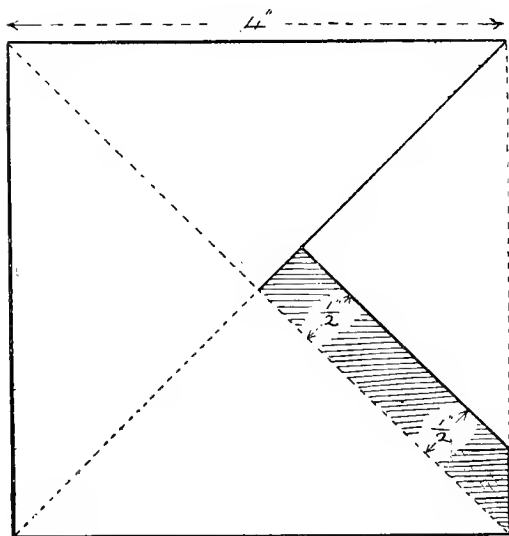
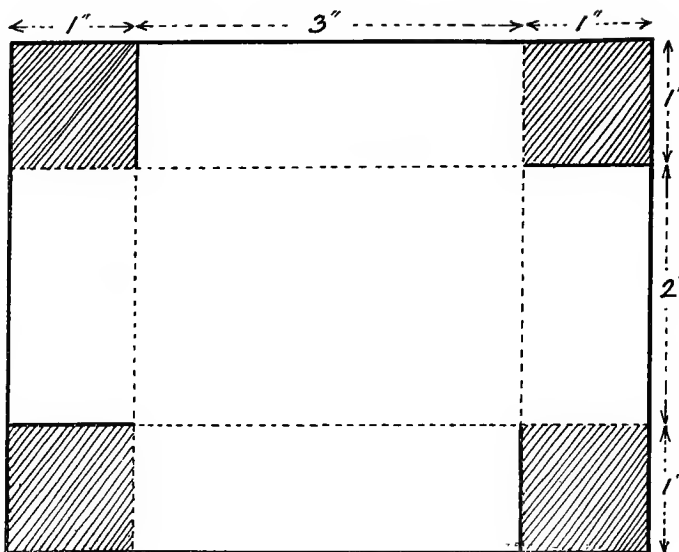
From a 4" square.

Fold first for "trial," then
gum and fix in position. Be
sure that one corner adheres
firmly before attempting to fix
another.

Model 8.
A Rectangular Tray
or Box.

From a rectangle 5"
 by 4".

The procedure is the
 same as for Model 7, of
 which this is a variation.



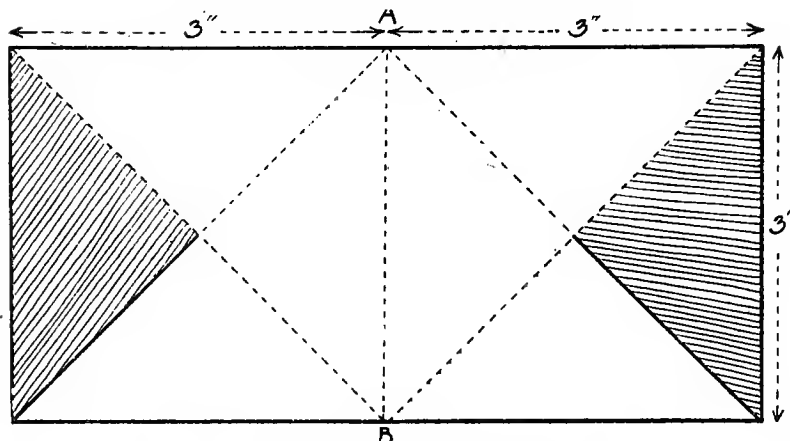
Model 9.
A Triangular Basket with
Handle.

From a 4" square.

Fold for trial, then open out,
 gum and fix in position.

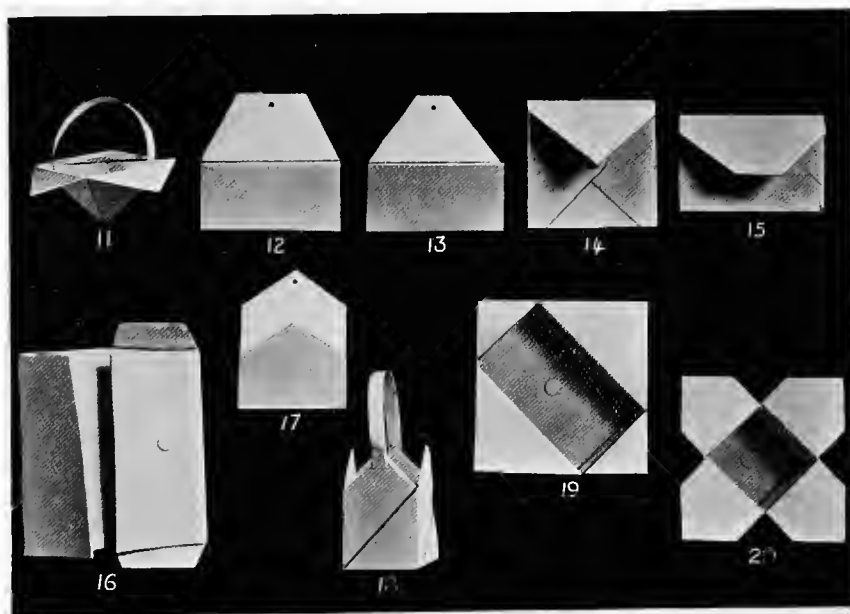
Cut a strip $6\frac{1}{2}$ " by $\frac{1}{4}$ " for the
 handle, gumming $\frac{1}{2}$ " at each end.
 Attach to two adjacent sides, at a
 distance of 1" from the third side.

Model 10. A Corner Bracket.

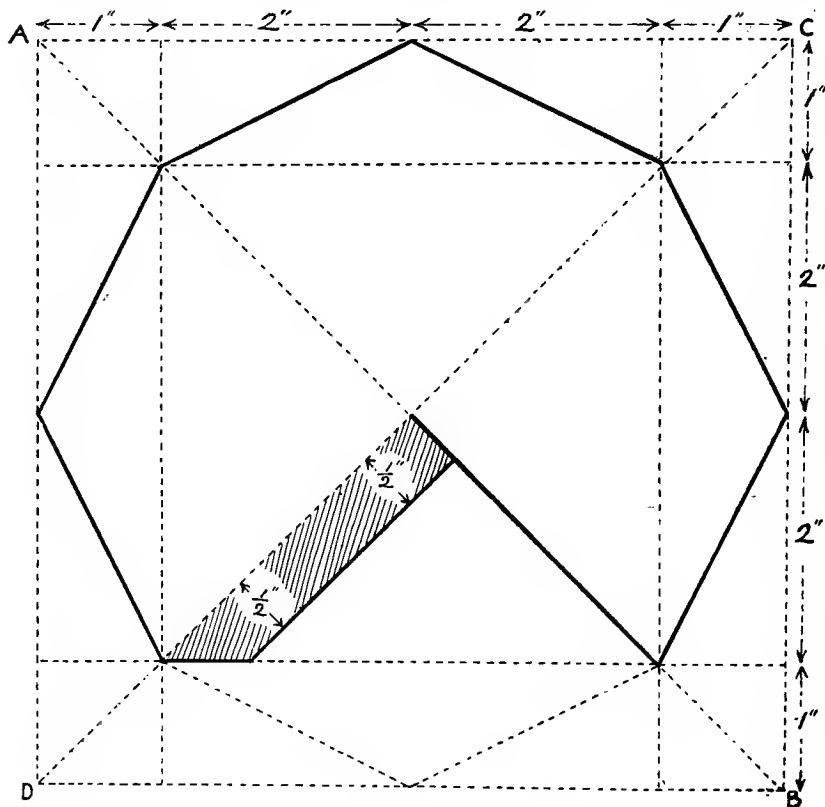


From a rectangle 6" by 3".

Along AB fold *downward*, other folds being upward. Fold for trial, open out, and then gum. Fix one half securely before attempting the other.



Models 11 to 20.

Model 11. A Triangular Basket with Turned-down Edges.

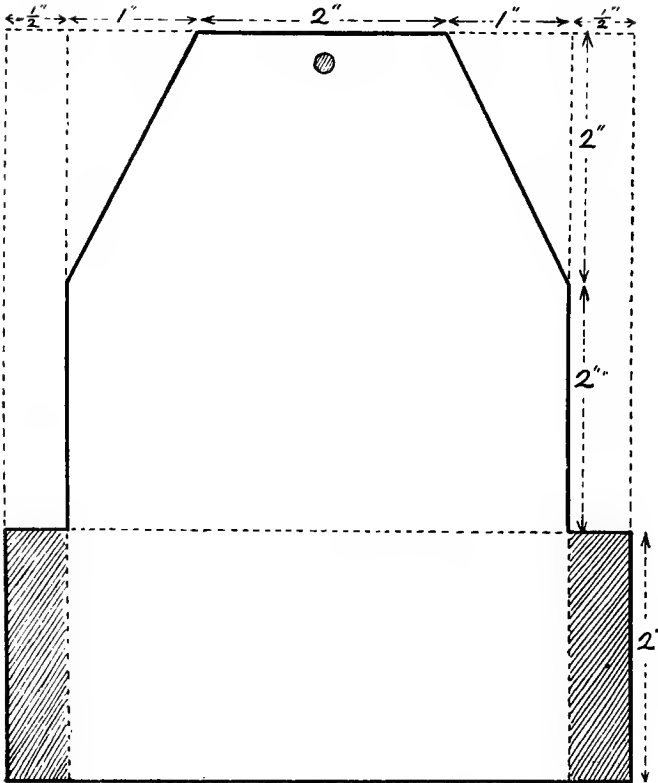
From a 6" square.

Along AB and CD fold *upward*, other folds being downward.

Cut a strip $6\frac{1}{2}$ " by $\frac{1}{4}$ " for the handle, and attach as in Model 9.

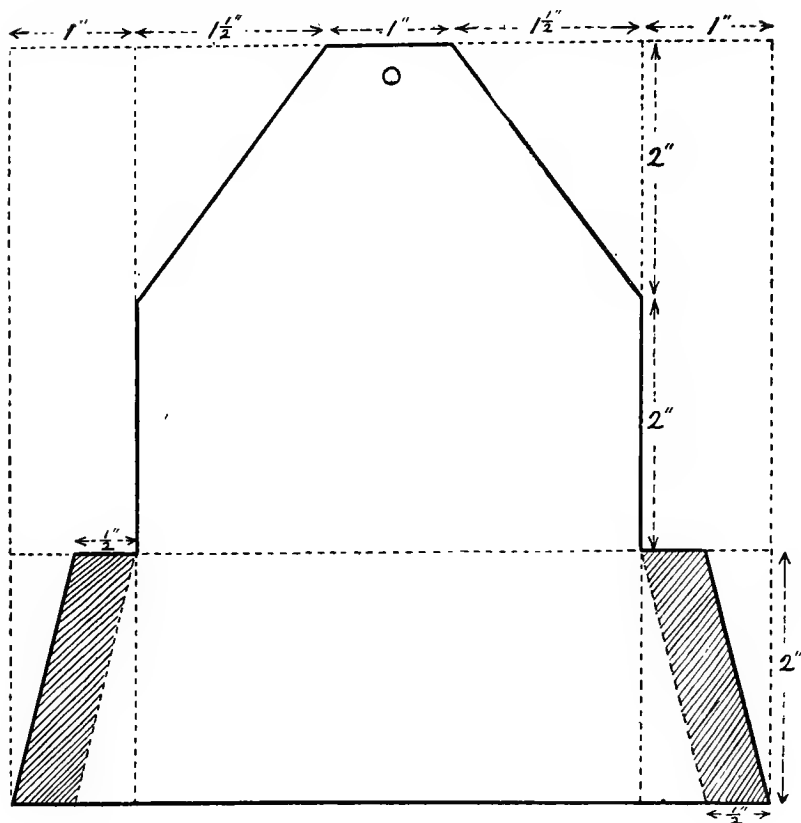
[The dotted sloping lines at the base of the diagram are not required, but should be drawn for any incidental teaching relating to an octagon].

Model 12. A Wall Pocket.



From a rectangle 6" by 5".

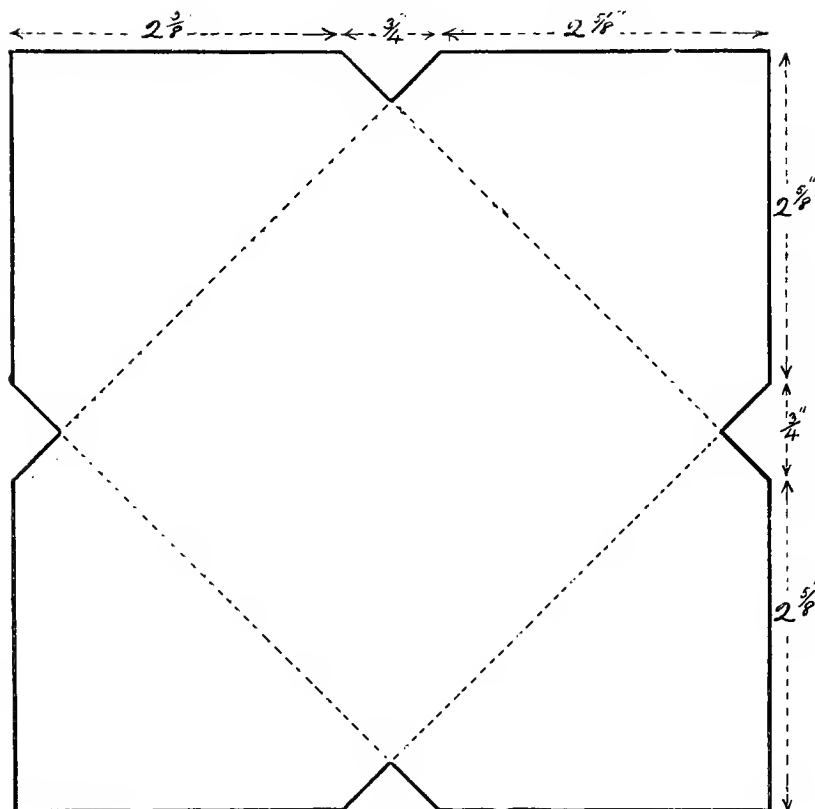
The side pieces, marked for gum, are to be fixed at the back of the model.

Model 13. A Wall Pocket with Sloping Front.

From a 6" square.

This is a variation of Model 12. A ruler pressed over the gummed portion will assist adhesion, the model being laid with its back flat on the desk. [This plan is necessary, because the child's fingers are too large to go inside the pocket.]

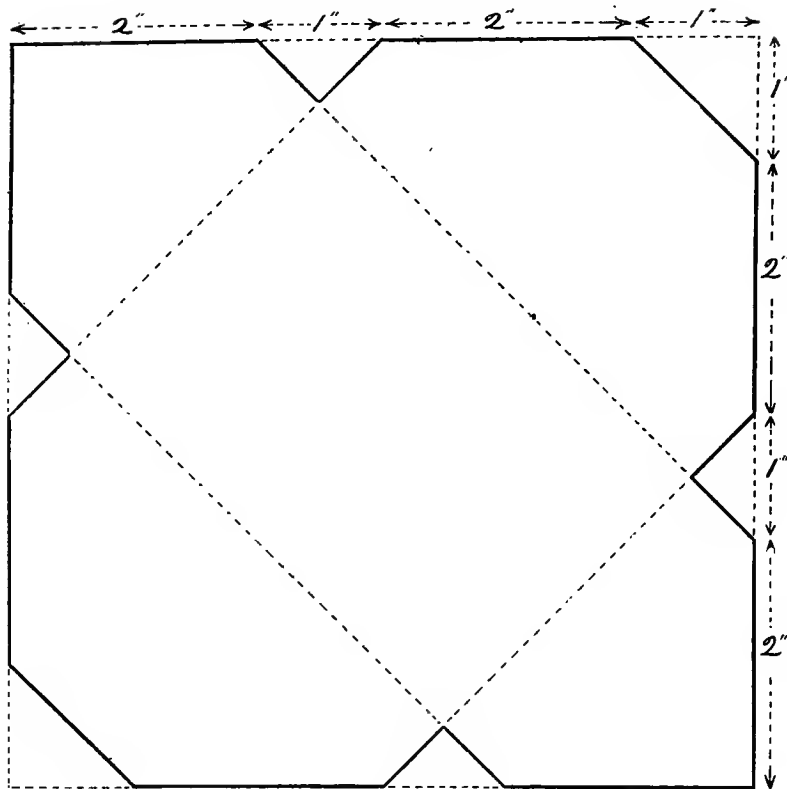
Model 14. A Square Envelope.



From a 6" square.

The places for gum will be obvious when the model is completed, after folding for trial.

[Note that this is the first model introducing eighths of an inch. In consequence, some incidental teaching on *eighths* will be advisable].

Model 15. A Rectangular Envelope.

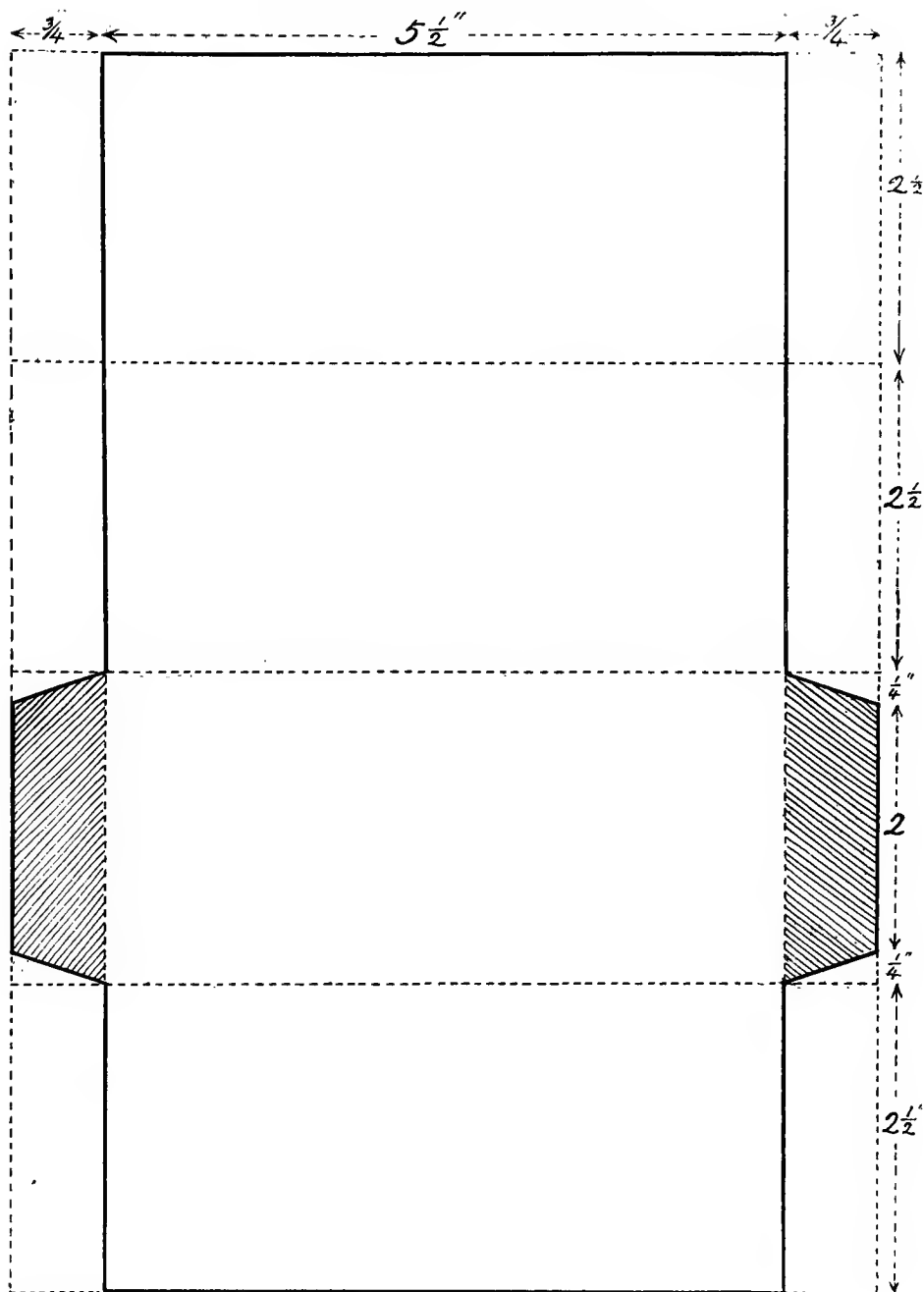
From a 6" square.

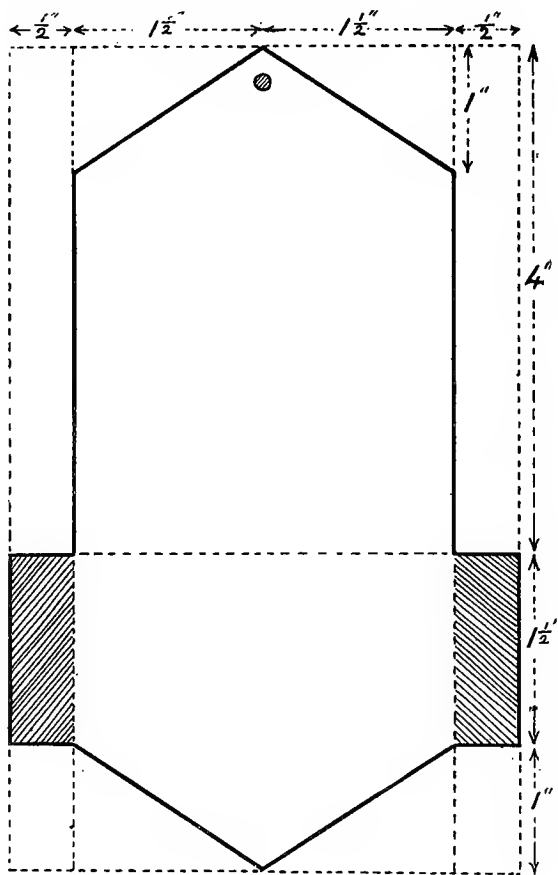
The places for gum will be obvious when the model is completed.

Model 16. A "Letterette."

From a rectangle 10" by 7".

Fold the bottom rectangle first, then the top one, then bring the two halves together, gum overlapping portions in position and address ready for the post. [Before gumming, the paper could be used in a letter-writing lesson].

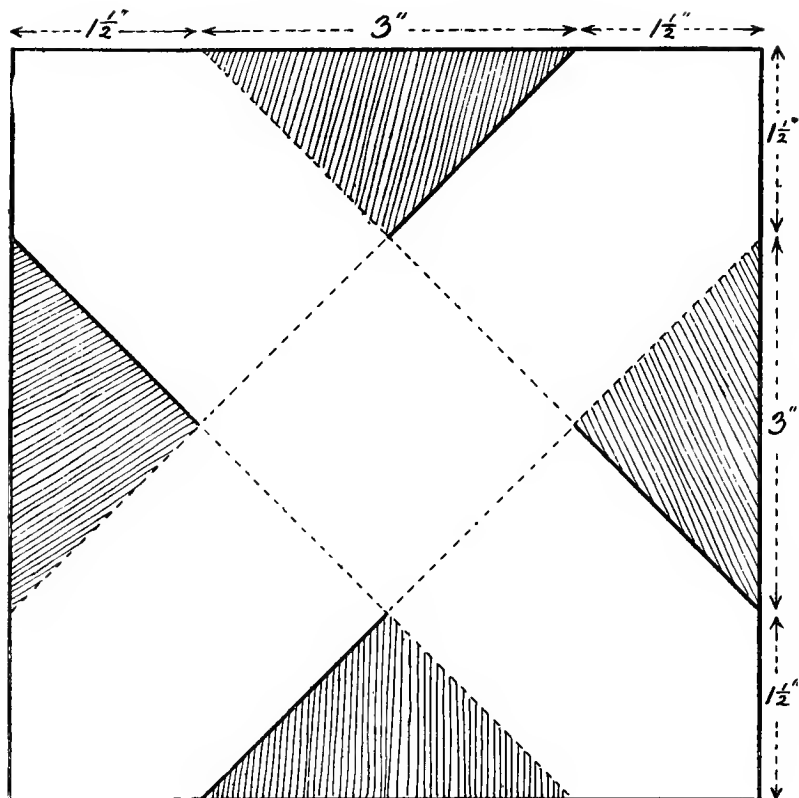


Model 17. A Miniature Letter Rack or Card Pocket.

From a rectangle $6\frac{1}{2}$ " by 4".

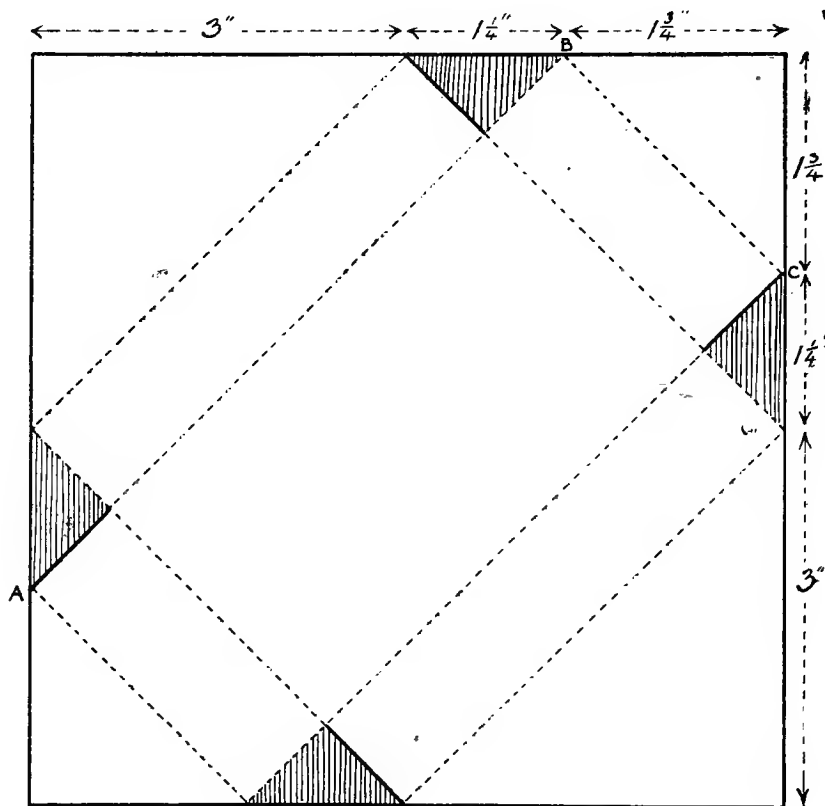
[Size can be increased to make a serviceable Letter Rack if required.]

Model 18. A Square Basket.



From a 6" square.

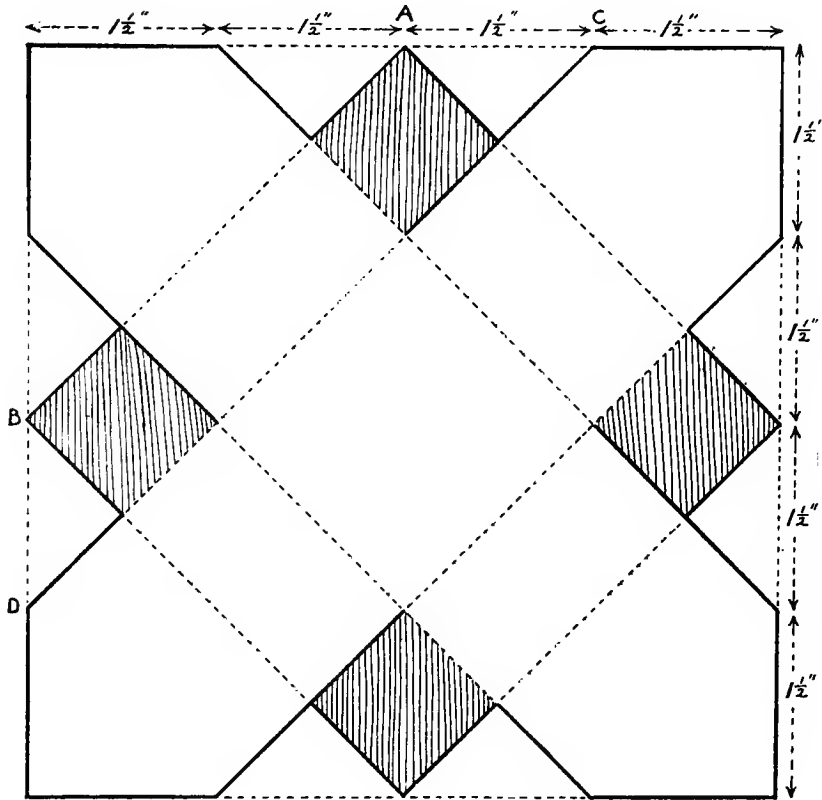
Cut a strip $6\frac{1}{2}"$ by $\frac{3}{8}"$ for a handle, and attach to two opposite "points." Half-an-inch at each end of handle to be gummed).

Model 19. A Rectangular Tray, with Turned-down Edges.

From a 6" square.

Fold along inner lines (e.g. AB) *upward*, other folds being downward.

Model 20. A Square Tray or Dish, with Turned-down Edges.



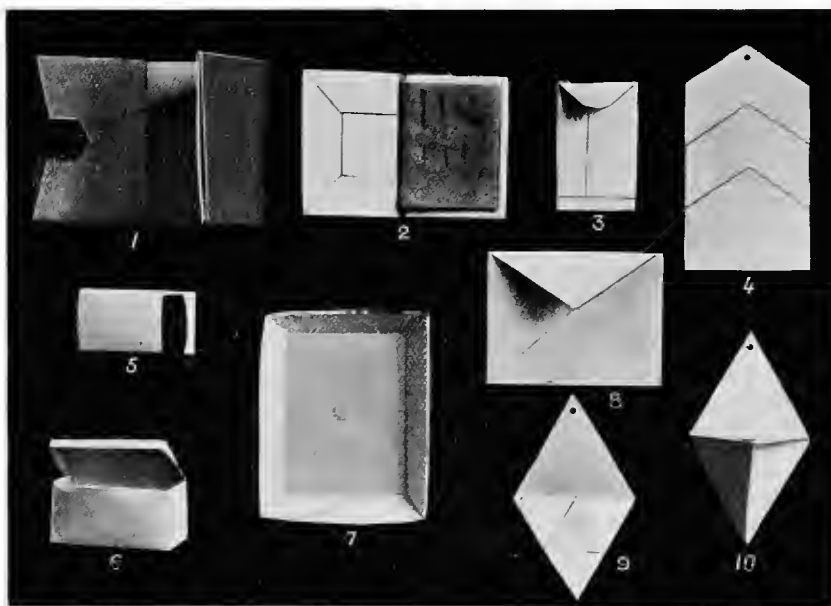
From a 6" square.

Fold along AB downward, and along CD upward. Repeat with other corners.

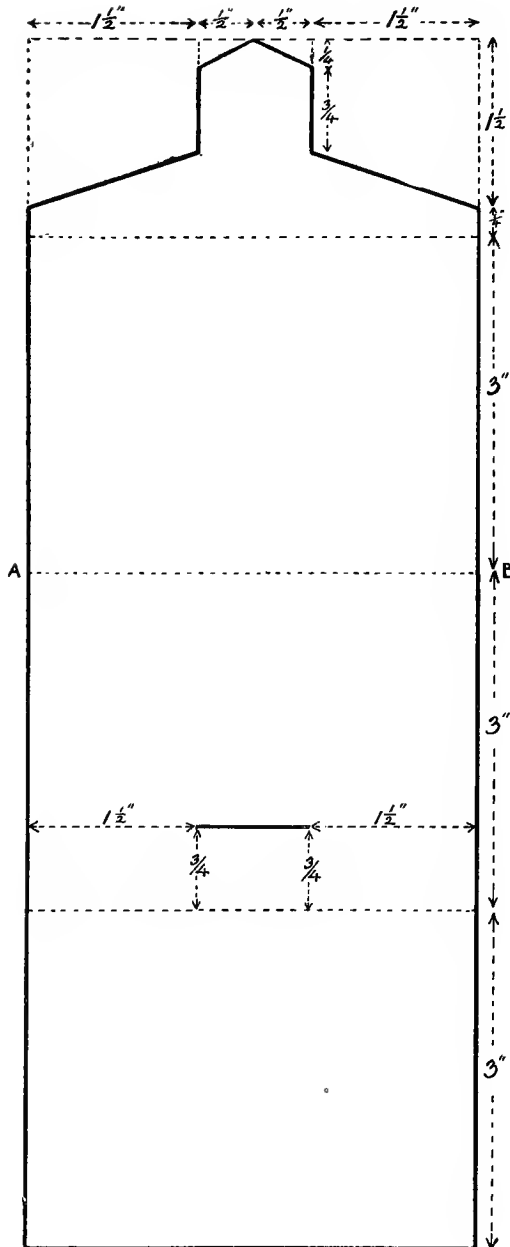
PAPER WORK. Scheme III.

Introduction to Scheme.

See Introduction to Scheme II., page 30.



Models 1 to 10.



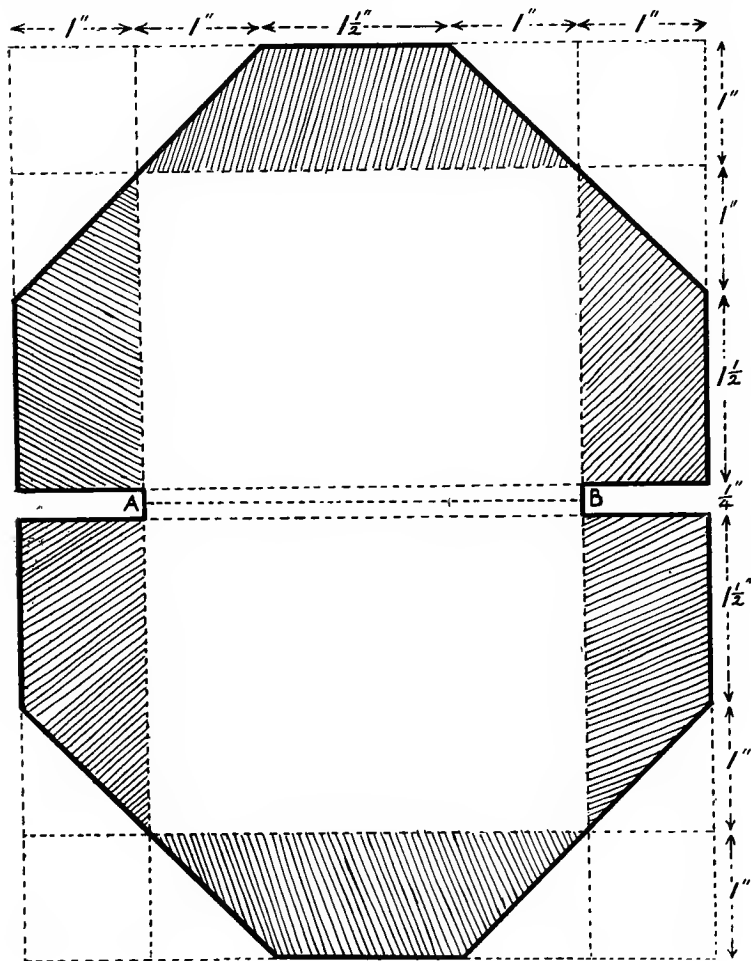
Model 1.

Folding Cover for Pocket Note Book.

From a rectangle $10\frac{3}{4}"$ by $4"$.

This should be cut out of brown paper (*e.g.*, Drawing Book covers).

Writing pages should be cut $6"$ by $4"$ (white paper), folded in the middle, and attached to the cover along line AB. The leaves may be attached by sewing, or, better still, by means of wire fasteners taken from old Exercise Books or Drawing Books. Note that there are only three folding lines.

Model 2. Stiff Cover for Needlecase or Notebook.

From a rectangle $7\frac{1}{4}$ " by $5\frac{1}{2}$ ".

The fold of the cover should be strengthened by means of a strip of Adhesive Linen, $3\frac{1}{2}$ " by $\frac{1}{2}$ ".

Stiffening boards should be made (two in number) of rectangular pieces of cardboard, $3\frac{1}{2}$ " by $2\frac{1}{2}$ ".

For a Needlecase.

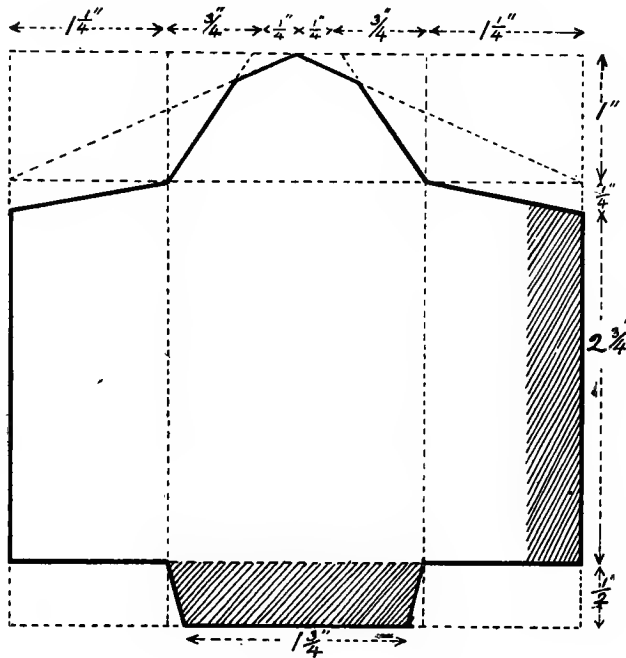
Cut a piece of flannel (or other thin material), $4\frac{1}{2}$ " by 3", fold across the middle, and attach as in Model I along the line AB.

For a Notebook.

Cut writing sheets $4\frac{1}{2}$ " by 3", and proceed as above.

[Girls should make a needlecase ; boys a notebook].

Model 3. A Packet for Seeds.

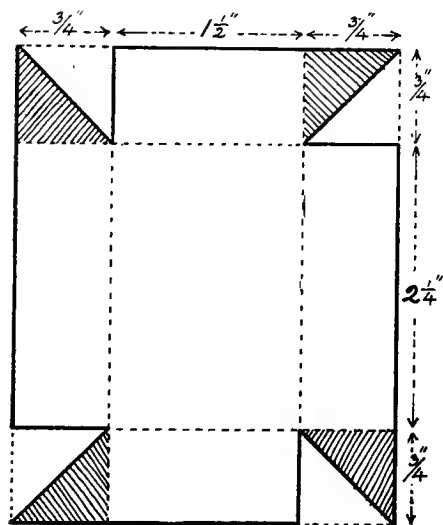


From a $4\frac{1}{2}$ " square.

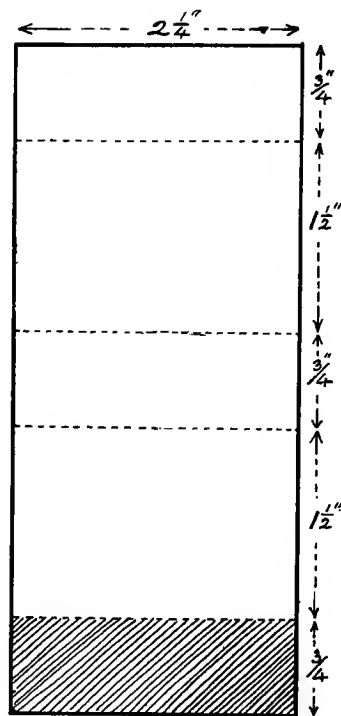
Fold the left-hand side first, then the right, and lastly the bottom.

When ready for folding, turn up the rectangle A, gumming it on the side then brought into view. Turn B over to form the upper pocket, gumming C to the back of the model. Then turn up D to form the lower pocket, and stick its two folding sides to adhere to the back of the model.

Model 5. A Matchbox.



BOX



COVER

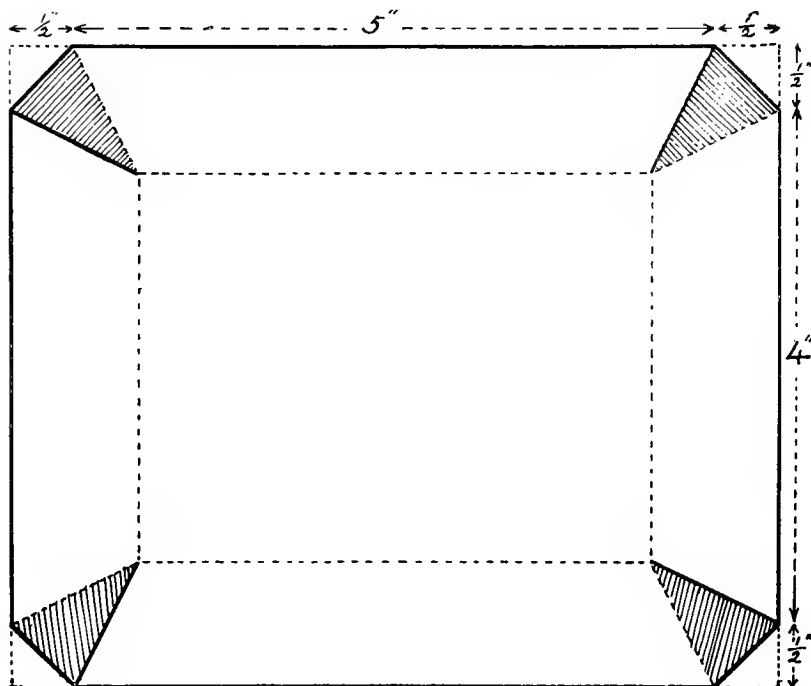
(a) The Box from a rectangle $3\frac{3}{4}$ " by 3".

(b) The Cover from a rectangle $5\frac{1}{4}$ " by $2\frac{1}{4}$ ".

The gummed portions should be made to adhere *inside* the box, so that it will pass readily into the cover.

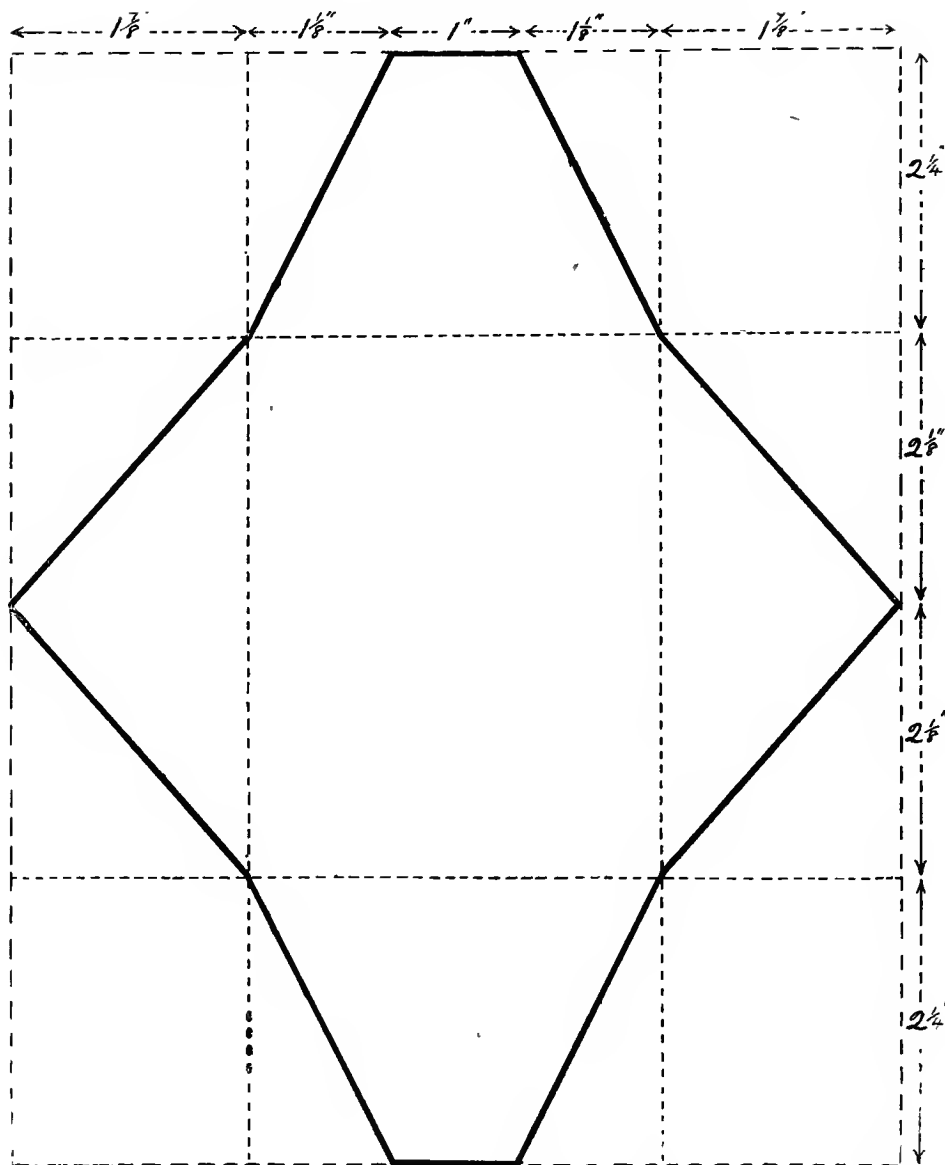
Model 7.

A Rectangular Dish or Tray, with Sloping Sides.



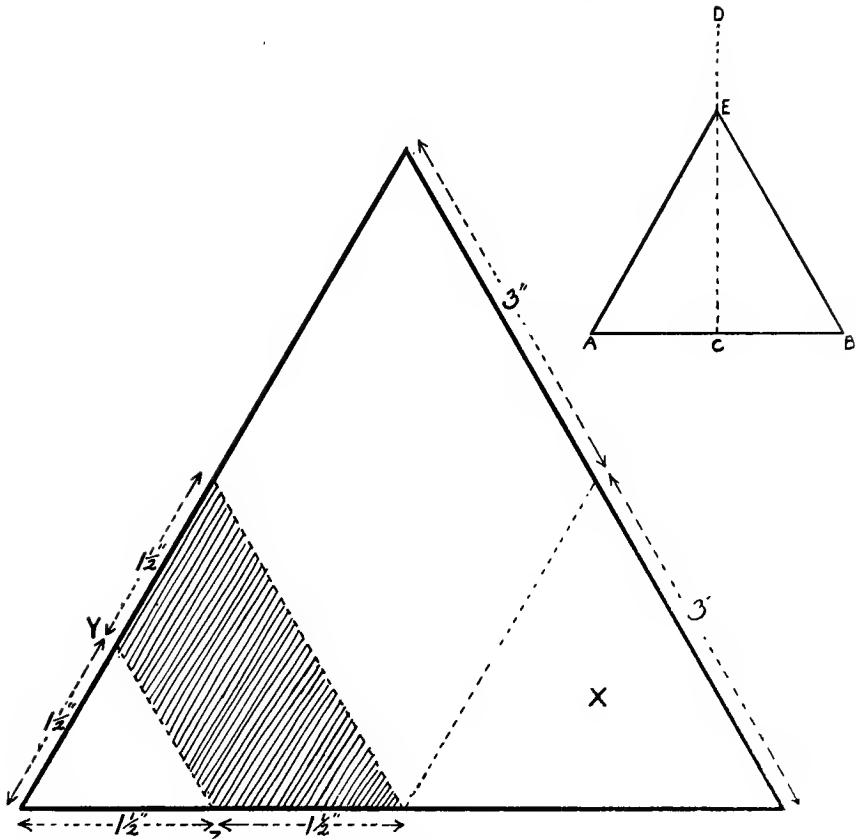
From a rectangle 6" by 5".

The corners will need "trimming" after fixing in position.

Model 8. A Rectangular Envelope.

From a rectangle $8\frac{3}{4}"$ by $7"$.

Places for gum will be obvious when the folding is complete.

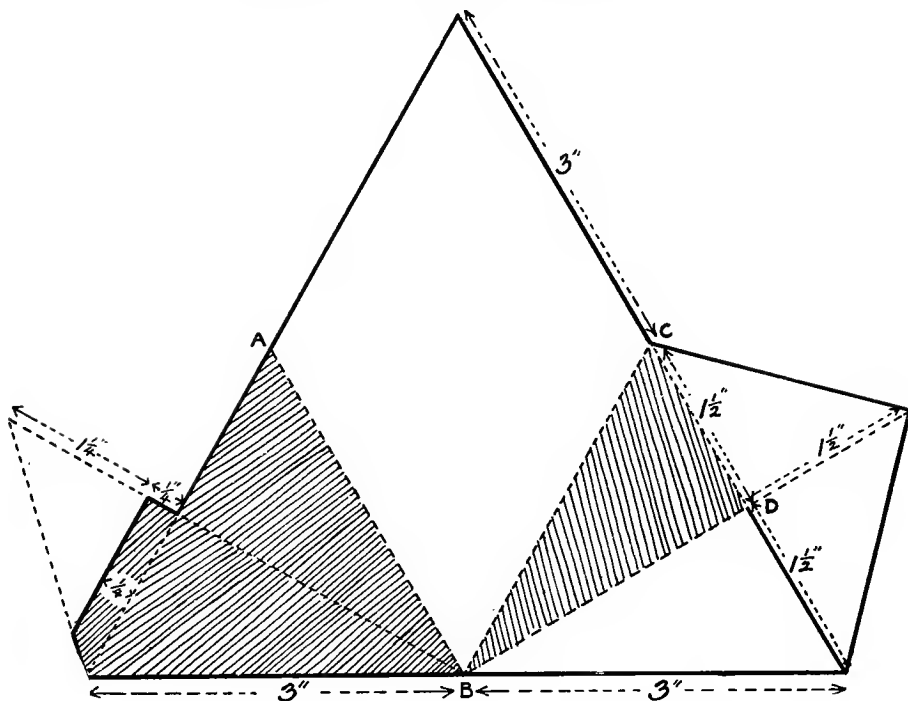
Model 9. A Wall Pocket.

From an Equilateral Triangle with 6" sides (paper to be supplied is a 6" square or a larger sheet).

Fold X over, then the opposite side. Then fold *back* along YZ.

Construction of an Equilateral Triangle.

Where compasses are not available, proceed as follows:—Draw AB 6" long and bisect at C. Draw CD (about 6" long) at right angles to AB (by means of a set square, or by drawing parallel to edge of paper). Place ruler in such a position that AE may be drawn 6" long and to reach the perpendicular AD. Join EB.

Model 10. A Wall Bracket.

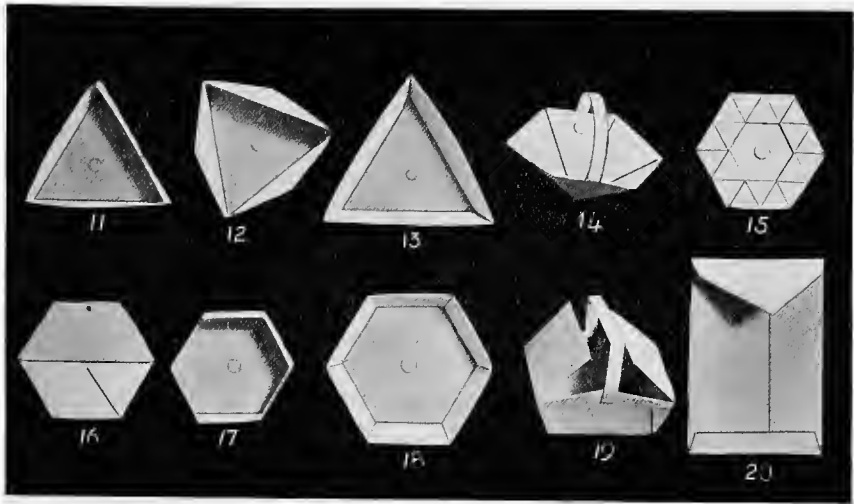
Supply a sheet of paper 8" by 6" (or larger).

Procedure.

Build up an equilateral triangle, with sides of 6", as in Model 9. Produce the lines necessary to construct the "side triangles," and complete as indicated in the diagram. Fold along AB and CB upward, and along all other folding lines in an opposite direction.

[The dotted continuation of BD is a construction line only].

In folding to construct the model, first fold the right-hand side (along BC), and backward along BD, then repeat with the left-hand side, finally folding the shelf into position, to which the $\frac{1}{4}$ " gummed strip should be attached.



Models 11 to 20.

Model 11.

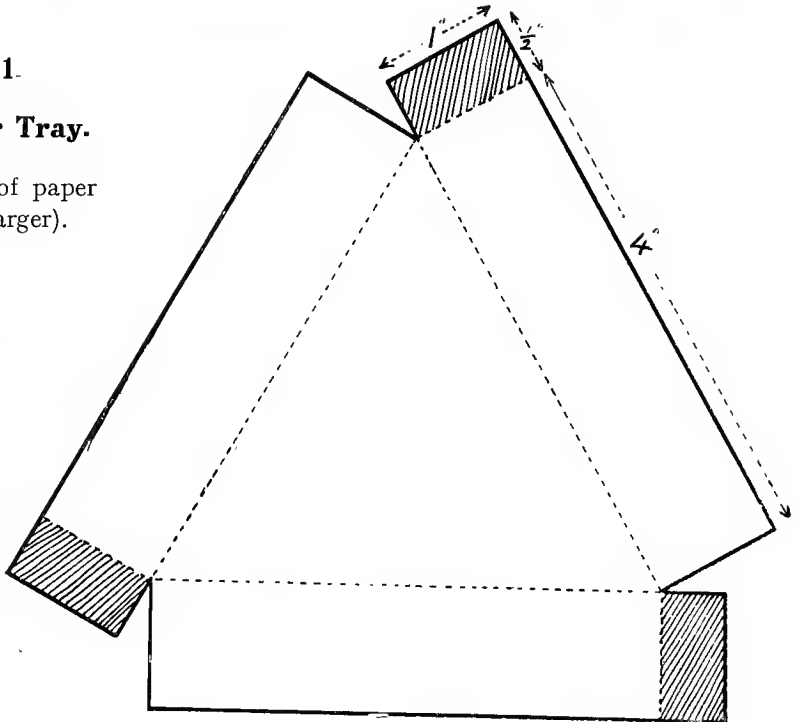
A Triangular Tray.

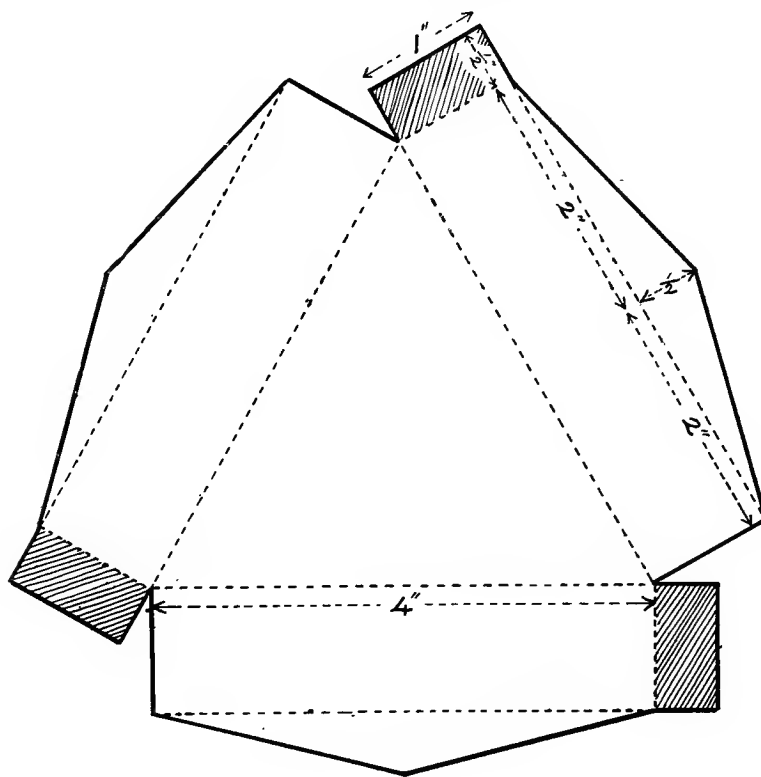
Supply a sheet of paper 7" by 6" (or larger).

Procedure.

Construct the inner triangle (equilateral with 4" sides), as in Model 9.

Then *build up* the necessary rectangle on each side.

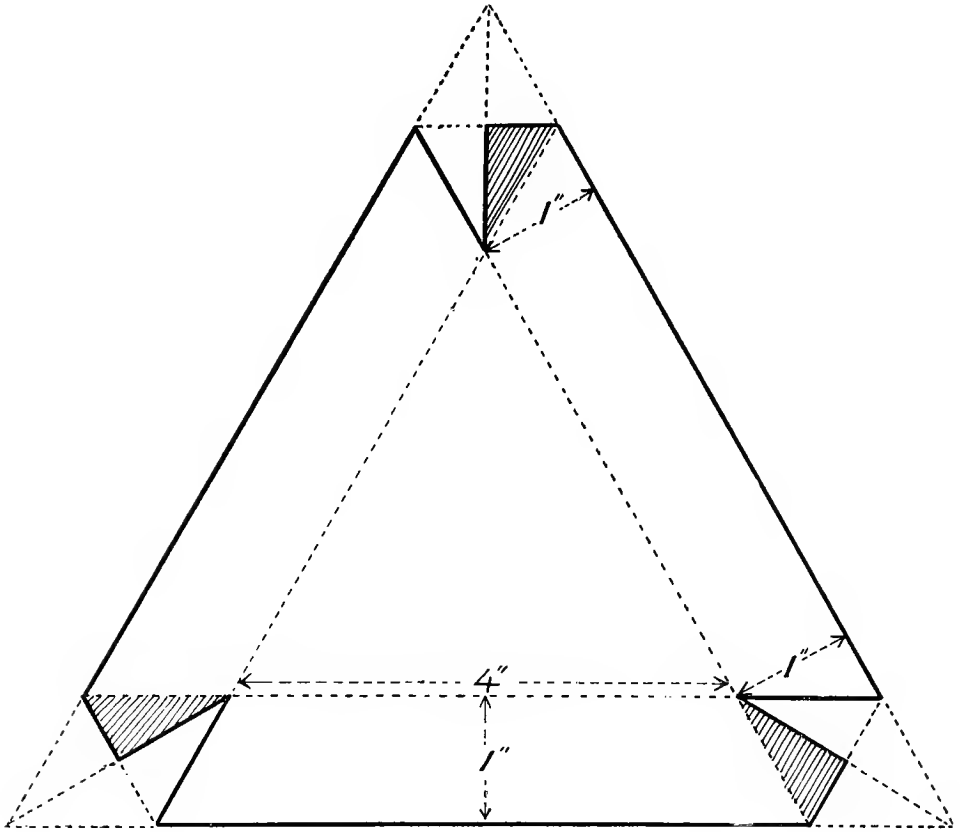


Model 12. A Triangular Tray with Ornamental Sides.

Supply a sheet of paper, 7" square (or larger).

Procedure.

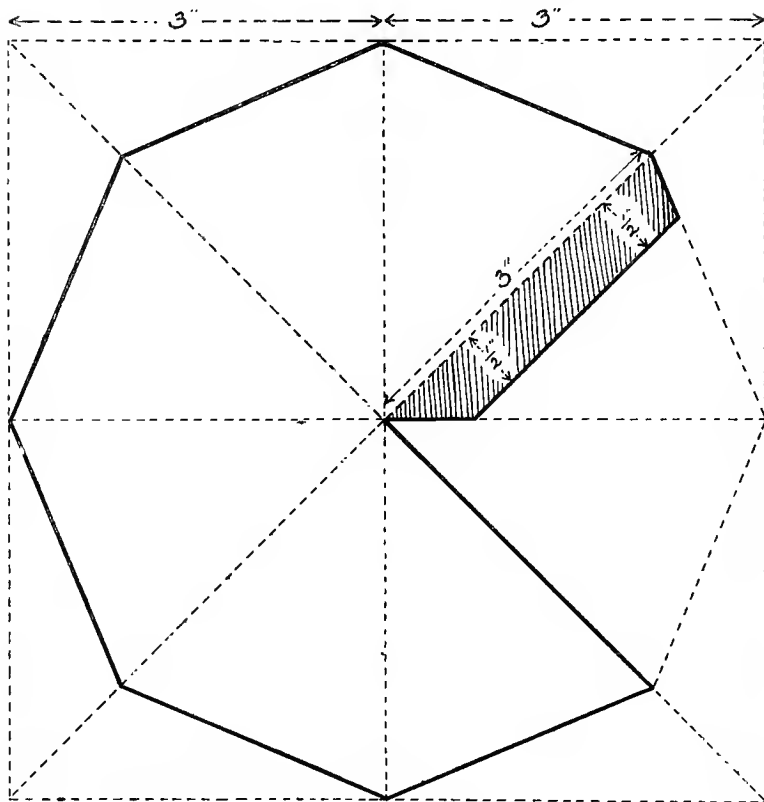
Construct equilateral triangle and rectangular sides exactly as in Model 11. Then build up the triangular "summits" to each rectangle. Fold the sides of the tray *upward*, and fold *back* the triangular "tops."

Model 13. A Triangular Tray with Sloping Sides.

Supply a sheet of paper 8" by 7" (or larger).

Procedure.

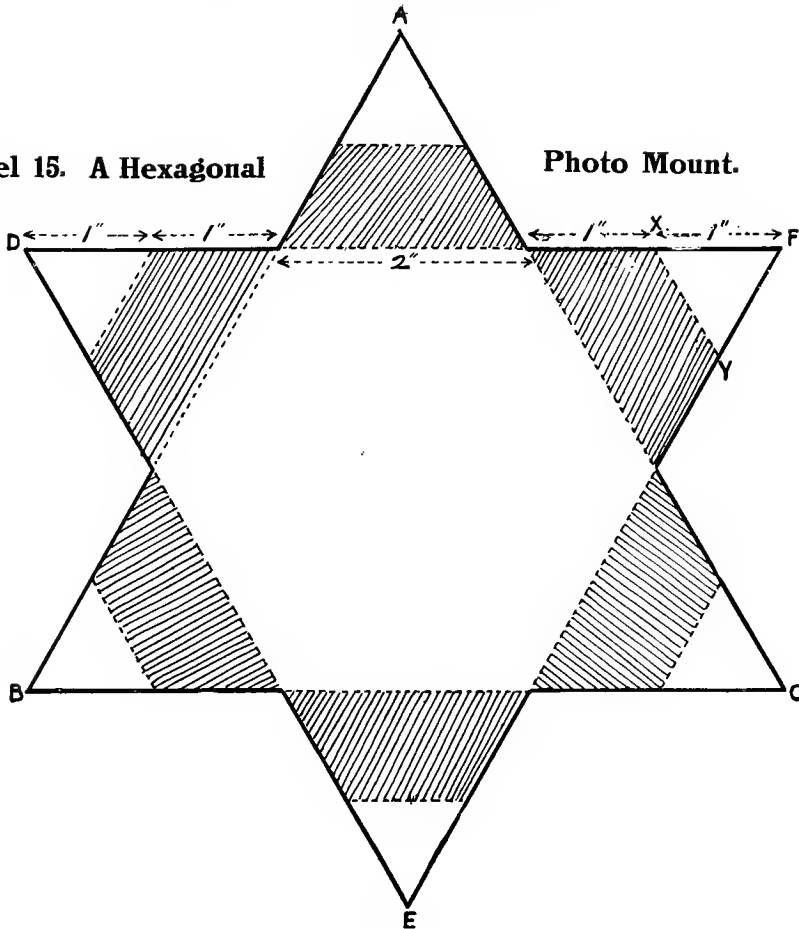
Draw the base of the inner equilateral triangle one inch from the foot of the paper supplied. Construct the inner equilateral triangle (sides 4"), and build out from it as the diagram indicates.

Model 14. A Six-sided Hanging Basket.

From a 6" square.

Procedure.

Draw the diameters and diagonals of the square. To construct the octagon, measure, from the centre of the figure, 3" along each semi-diagonal and join to form the sides. Arrange overlapping portion to gum, as indicated in diagram. Cut a strip 6" by $\frac{1}{4}$ " for the handle, which should be attached to the middle of two opposite sides.

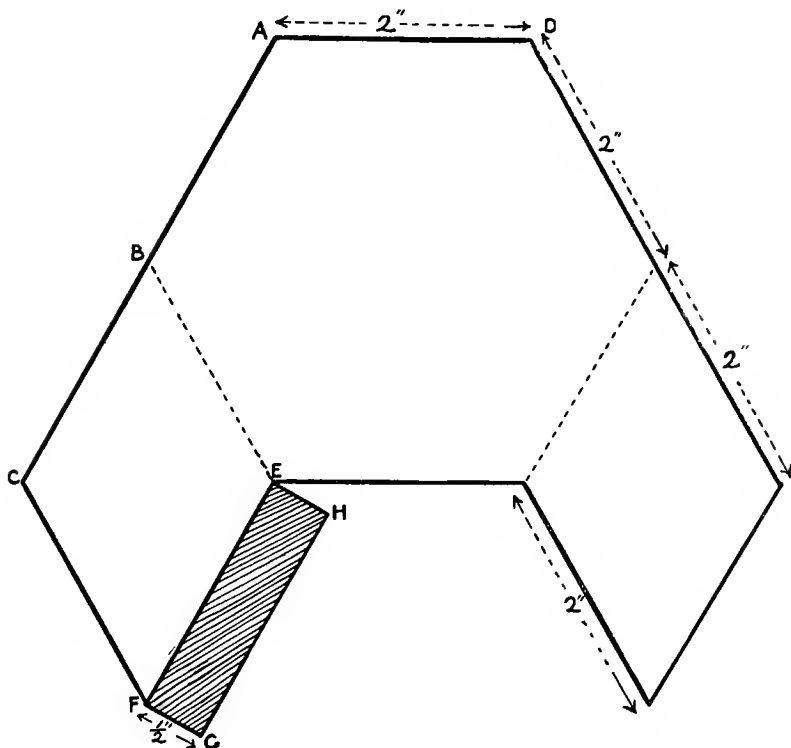
Model 15. A Hexagonal**Photo Mount.**

Supply a sheet of paper 8" by 7" (or larger).

Procedure.

Draw an equilateral triangle ABC, with sides 6" long, each divided into three equal parts. Through these "division points" draw three lines, 6" long, to form an overlapping equilateral triangle DEF, with apex pointing downward. This gives a central hexagon with six equilateral triangles built on its sides. Fold these equilateral triangles over to cover the hexagon, and fold *back* along XY, etc. Good effects may be obtained by colouring with crayon or water-colours (two or more shades).

[Note that this gives a method of constructing a Hexagon for future models].

Model 16. A Hexagonal Wall Pocket.

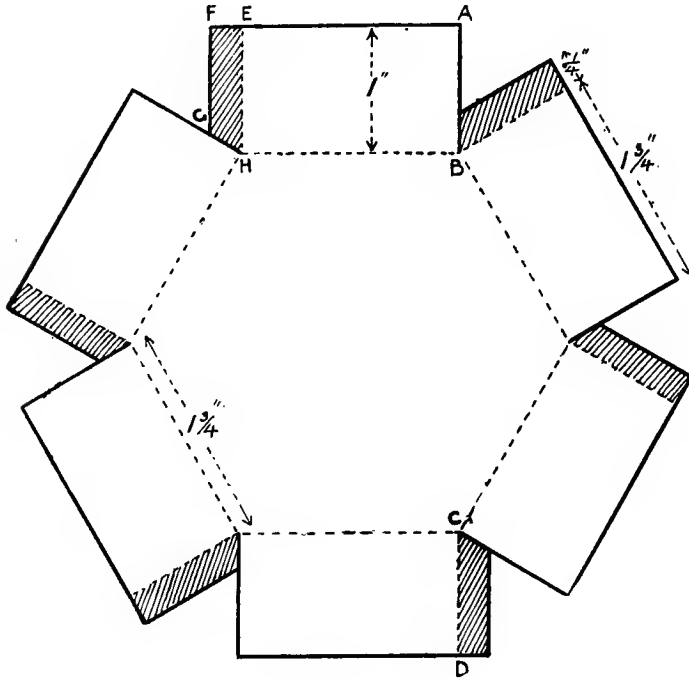
Supply a full sheet of Drawing Paper (11" by 7").

Procedure.

Construct a hexagon of 2" sides (as in Model 15). Produce AB to C, making BC 2" long. Place the ruler along DE and construct EF 2" long. Join CF. Repeat with right-hand side of model. Then construct the rectangle EFGH for sticking.

In folding, turn up the right-hand portion, then the left-hand portion, sticking EFGH at the back of the hexagon.

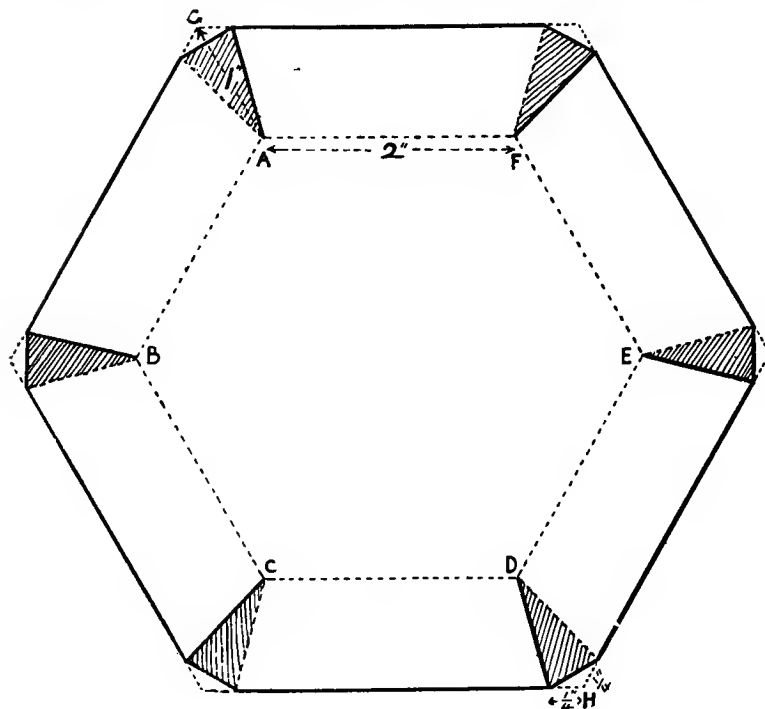
[*Note.* For Models 16, 17, and 18, a hexagon may be drawn on, and cut-out of, a separate sheet of paper, to be "pricked through" to the paper required for the model].

Model 17.**A Hexagonal Tray or Box with Upright Sides.**

Supply a sheet of paper 7" square (or larger).

Procedure

Construct inner hexagon (sides $1\frac{3}{4}$ ") as in Model 15 (sides of equilateral triangles to be $5\frac{1}{4}$ "). On the sides of the hexagon build the rectangles to form the sides of the tray (note that ABCD are in the same straight line). Then add the six portions to be gummed (*e.g.*, produce AE to F, making EF $\frac{1}{4}$ " long, and draw FG parallel to EH). Finally cut off waste paper and complete.

Model 18. A Hexagonal Tray with Sloping Sides.

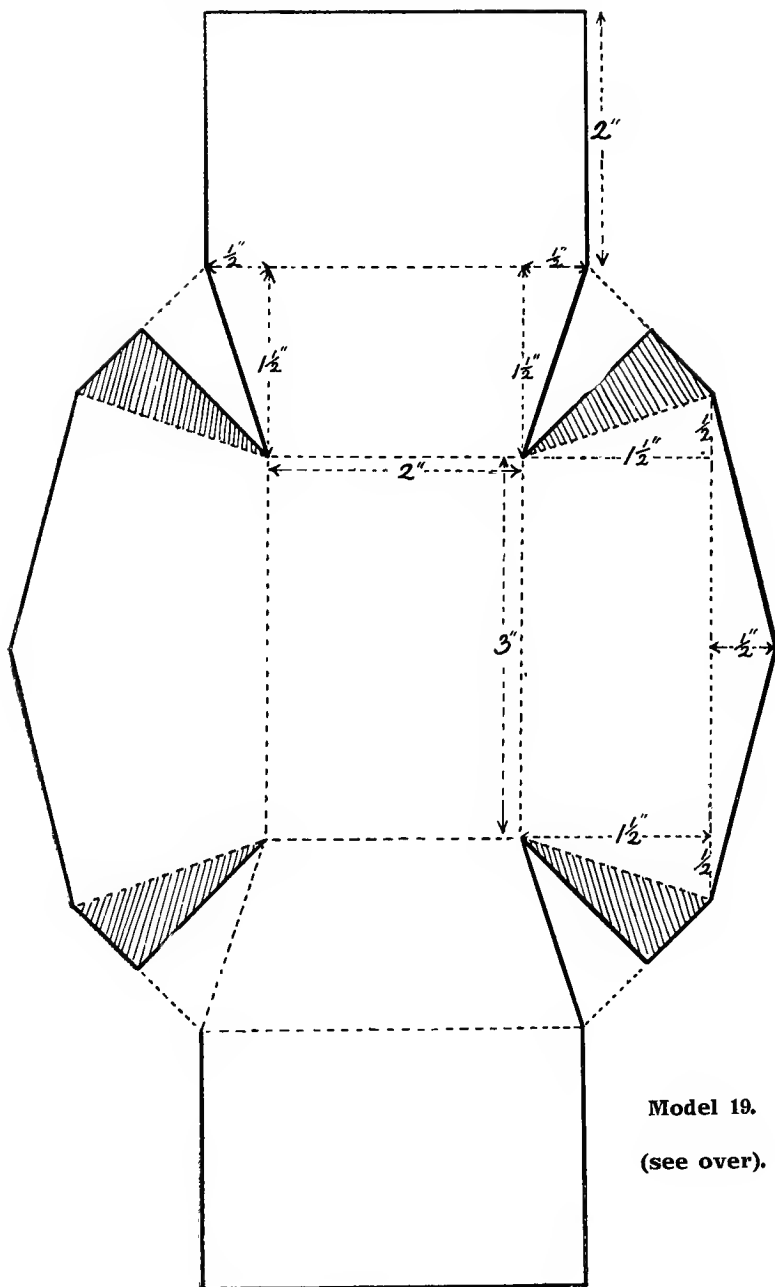
Supply a sheet of paper 7" square (or larger).

Procedure.

Construct the inner hexagon with sides of 2", as indicated in Model 15. Place ruler along AD, and draw AG and DH, each 1" long. Repeat with other corners, and thus obtain 6 points for constructing the outer hexagon. Measure $\frac{1}{4}$ " on each side of H, etc., for making the sides of the tray and the portions to be gummed.

[As an additional exercise, this model may be made by using compasses, which could be borrowed from a higher class for this one lesson].

Note that the corners will need trimming with the scissors after fixing.



Model 19.

(see over).

Model 19. A Basket with Lids.

Supply a whole sheet of Drawing Paper 11" by 7".

Procedure.

(a) Draw the inner rectangle 3" by 2", with sides parallel to the edges of the paper.

(b) On each of the shorter sides construct a rectangle 2" by $1\frac{1}{2}$ ". Produce the top $\frac{1}{2}$ " each way, and on this as base, construct a rectangle 3" by 2" (shown at the top and bottom of diagram).

(c) On each of the longer sides construct a rectangle 3" by $1\frac{1}{2}$ ". Produce the top $\frac{1}{2}$ " each way, and on this as base, construct an isosceles triangle with an altitude of $\frac{1}{2}$ ".

(d) Add portions for gum as indicated, and fold for trial.

(e) Cut a strip $6\frac{1}{2}$ " by $\frac{3}{8}$ " for the handle, folding at right angles $1\frac{3}{4}$ " from each end. Gum $\frac{1}{2}$ " at each end, and fix to the middle of the sides of the basket.

Note.—(i.) The diagram contains dotted lines (for construction), which are *not* folding lines.

(ii.) The construction of the diagram can be made much more simple by projecting all vertical and horizontal construction lines to the sides of a rectangle 10" by 6".

Model 20. An Envelope.

From a rectangle $8\frac{3}{4}$ " by $8\frac{1}{2}$ ".

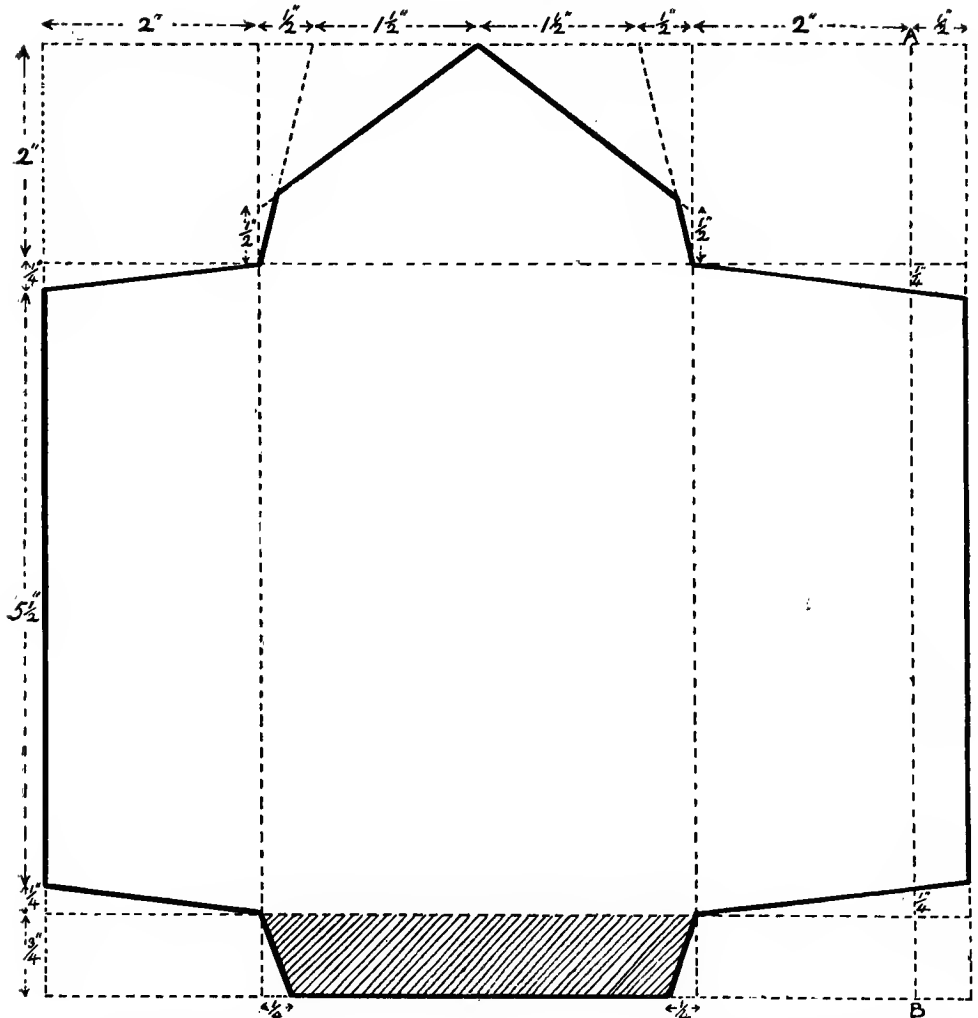
Procedure.

Construct the rectangle, and draw the horizontal and vertical lines.

Plan-out and complete the top, then the bottom, and finally the sides.

Note that the right-hand side is like the left-hand side, except that an extra $\frac{1}{2}$ " is added for over-lapping and for gum (not shaded in diagram). [The dotted line AB is a construction line, not a folding line].

Model 20. . . An Envelope—*continued.*



The left-hand side should be folded first, then the right-hand side, then the bottom, and finally the top.

N.B.—If the children are to make a number of such envelopes for school use, much time will be saved if each child first constructs a *pattern* in cardboard.

STRIP-CARDBOARD WORK.

Scheme I.

Introduction to Scheme.

This work forms a preparation for Light Woodwork in later classes.

Tools.—Each child should be supplied with a good ruler, a pair of scissors, and a sheet of paper marked in squares. [Squared paper prepared for Brushwork, or Scale-drawing paper, will do]. A bottle of gum, with brush, will suffice for each pair of children.

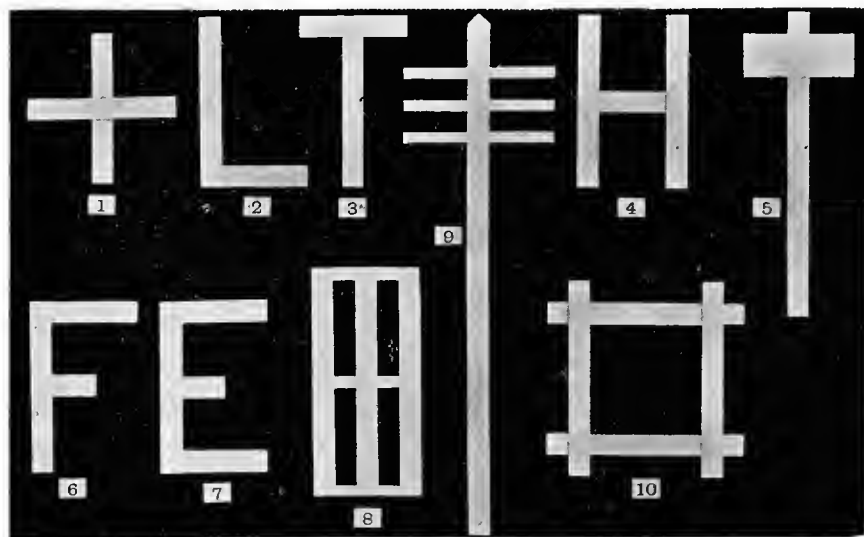
Material.—White cardboard, cut ready, in strips of $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", and 1" width.

Procedure.—(i.) The strips should be marked the required length, and then, before cutting, should have a line ruled across at right-angles. To aid in this, the strip should be placed on the sheet of squared paper.

(ii.) The places where one strip fits on others should be similarly marked, with great care, *on both sides*.

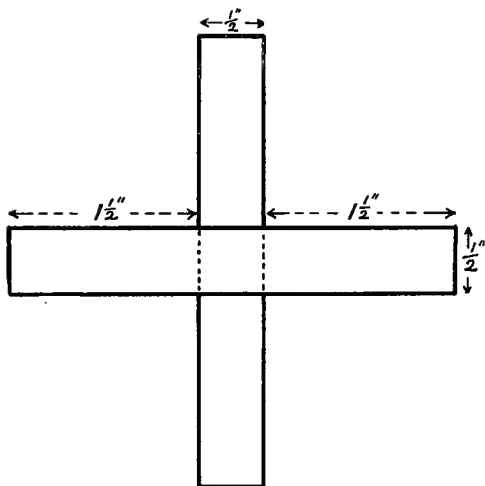
(iii.) Gum should be *thinly* placed on those parts needing it.

(iv.) Strips should be placed in position to form the model, and should be held firmly until they adhere. To aid in obtaining perfect right angles, use the squared paper mentioned above.



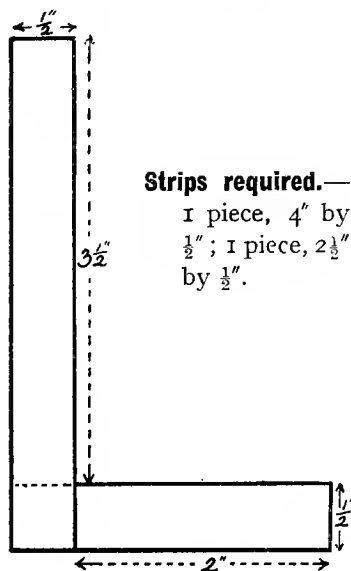
Models 1 to 10.

Model 1. A Simple Cross.



Strips required.—2 pieces, $3\frac{1}{2}$ " by $\frac{1}{2}$ ".

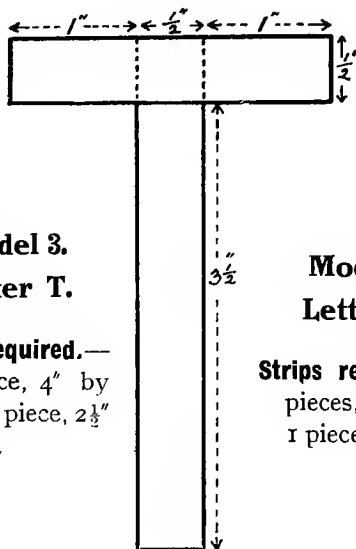
Model 2. Letter L.



Strips required.—
1 piece, 4" by $\frac{1}{2}$ "; 1 piece, $2\frac{1}{2}$ " by $\frac{1}{2}$ ".

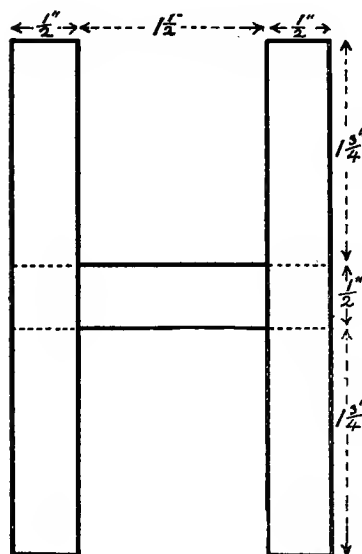
**Model 3.
Letter T.**

Strips required.—
1 piece, 4" by $\frac{1}{2}$ "; 1 piece, $2\frac{1}{2}$ " by $\frac{1}{2}$ ".

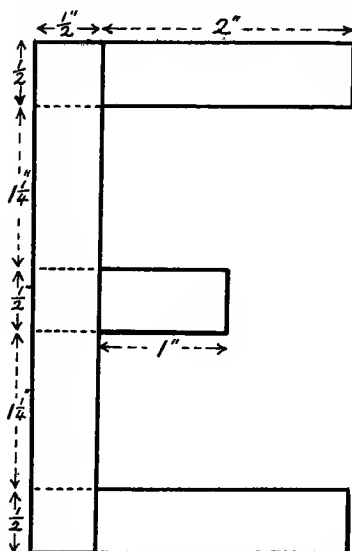


**Model 4.
Letter H.**

Strips required.—2
pieces, 4" by $\frac{1}{2}$ ";
1 piece, $2\frac{1}{2}$ " by $\frac{1}{2}$ ".

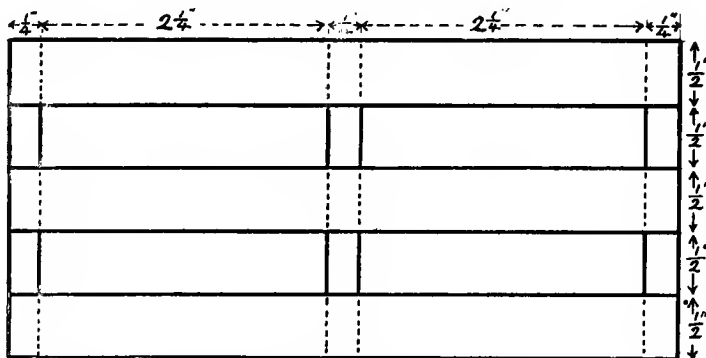


Model 7. Letter E.



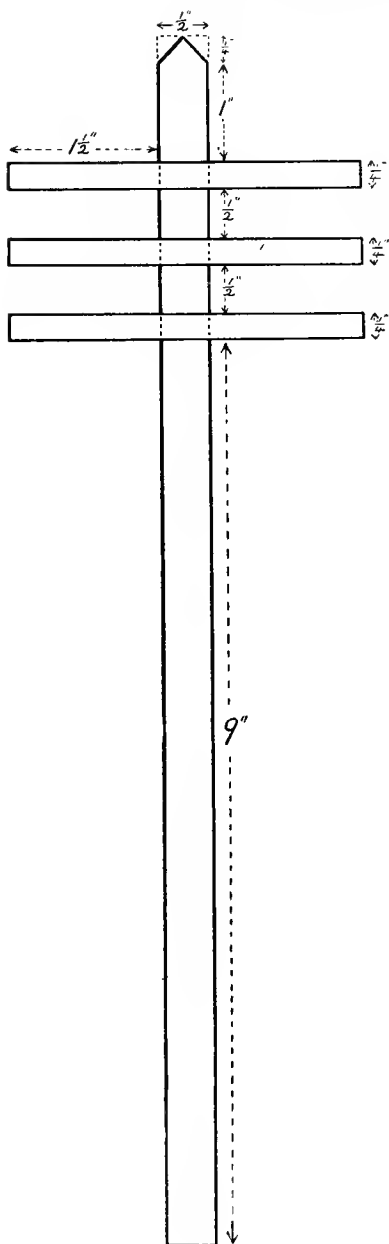
Strips required.—1 piece, 4" by $\frac{1}{2}$ "; 1 piece, 1 $\frac{1}{2}$ " by $\frac{1}{2}$ "; 2 pieces, 2 $\frac{1}{2}$ " by $\frac{1}{2}$ ".

Model 8. A Bathroom Mat.



Strips required.—3 pieces, 5 $\frac{1}{4}$ " by $\frac{1}{2}$ "; 3 pieces, 2 $\frac{1}{2}$ " by $\frac{1}{4}$ ".

Procedure.—Fix the top $\frac{1}{2}$ " strip and the left-hand $\frac{1}{4}$ " strip first, making sure of the right-angle. Similarly fix together the bottom $\frac{1}{2}$ " strip, and the right-hand $\frac{1}{4}$ " strip. Place these two together, and, when firmly fixed, add the two remaining strips.

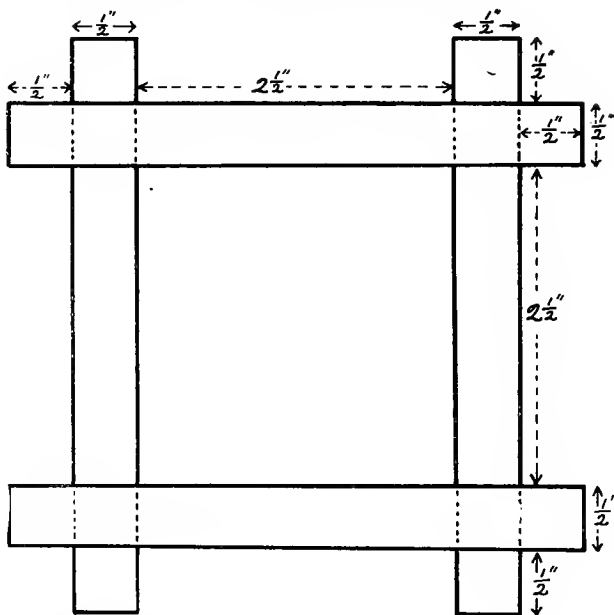


Model 9. A Telegraph Post.

Strips required.—1 piece, 12" by $\frac{1}{2}$ " ;
3 pieces, $3\frac{1}{2}$ " by $\frac{1}{4}$ ".

As an additional exercise, this model may be made half-size.

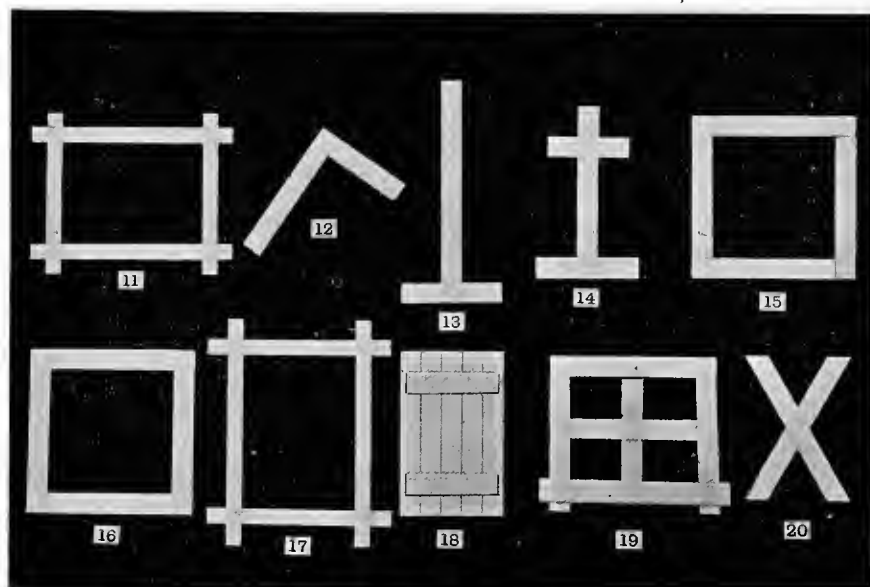
Model 10. A String Winder.



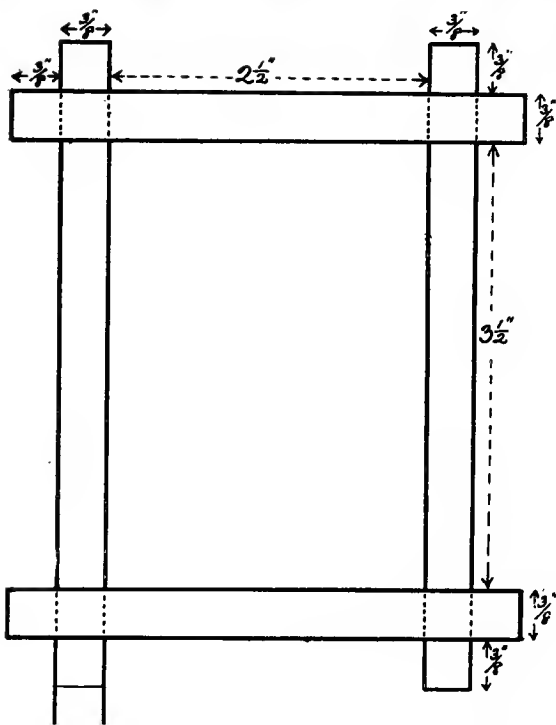
Strips required.—4 pieces, $4\frac{1}{2}$ " by $\frac{1}{2}$ ".

Procedure.

Follow the plan suggested in Model 8.



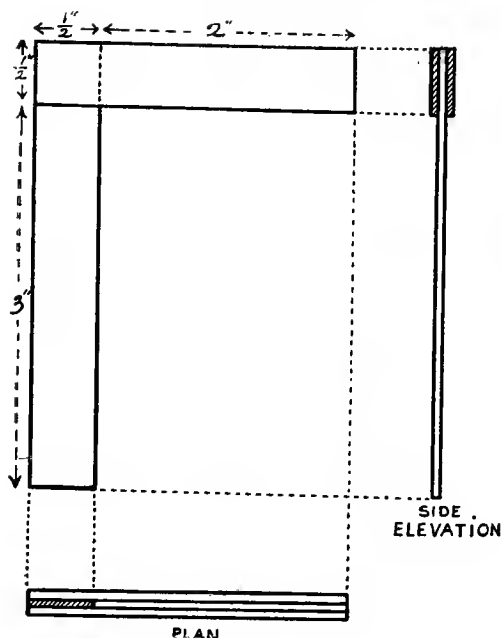
Models 11 to 20.



Model 11.

An Oxford Frame.

Strips required.—2 pieces, 5" by $\frac{3}{8}$ "; 2 pieces, 4" by $\frac{3}{8}$ ".

**Model 12.****A Try Square (built-up).**

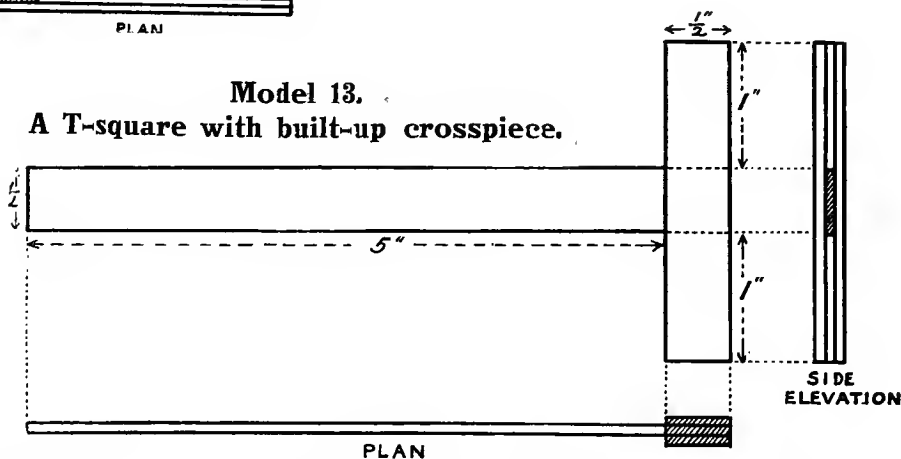
[The thickness of the cardboard is slightly exaggerated].

Strips required.—1 piece, $3\frac{1}{2}$ " by $\frac{1}{2}$ "; 1 piece, 2" by $\frac{1}{2}$ "; 2 pieces, $2\frac{1}{2}$ " by $\frac{1}{2}$ ".

Procedure.

Build up the "shaft" of three thicknesses, gummed together as indicated in the plan; then add the "blade", making a perfect right-angle, and holding firmly in position until fixed.

Model 13.
A T-square with built-up crosspiece.



Strips required.—1 piece, $5\frac{1}{2}$ " by $\frac{1}{2}$ "; 2 pieces, $2\frac{1}{2}$ " by $\frac{1}{2}$ "; 2 pieces, 1" by $\frac{1}{2}$ ".

Procedure.

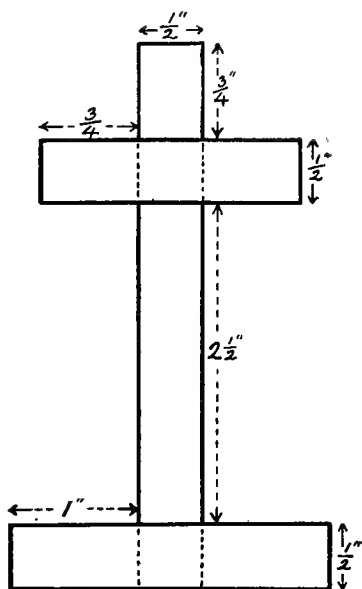
Build-up the base (shown on right) of three thicknesses arranged as indicated in side-elevation, leaving a hole in the middle for the insertion of the strip $5\frac{1}{2}$ " by $\frac{1}{2}$ ", which should be held firmly in place until it adheres

Model 14.

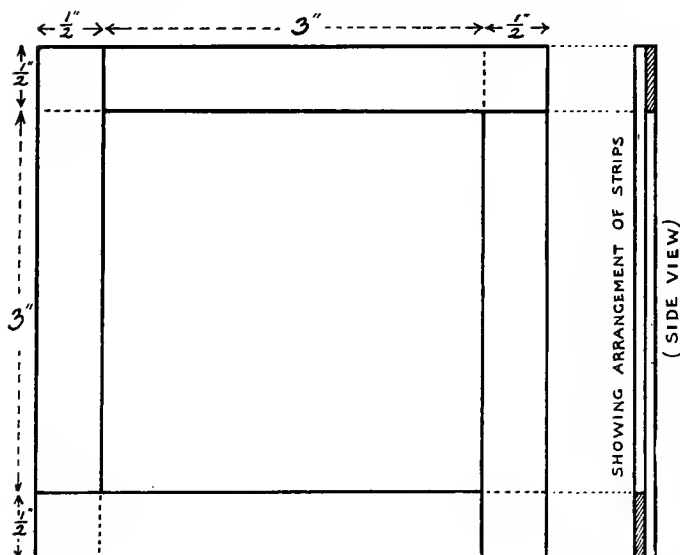
A Cross on a built-up base.

Strips required.—1 piece, $4\frac{1}{4}$ " by $\frac{1}{2}$ "; 1 piece, 2" by $\frac{1}{2}$ "; 2 pieces, $2\frac{1}{2}$ " by $\frac{1}{2}$ "; 2 pieces, 1" by $\frac{1}{2}$ ".

[*Note.*—The base is built up (3 thicknesses) in the same way as the cross-piece of the **T**-square Model 12. The cross-bar near the top is a single strip].

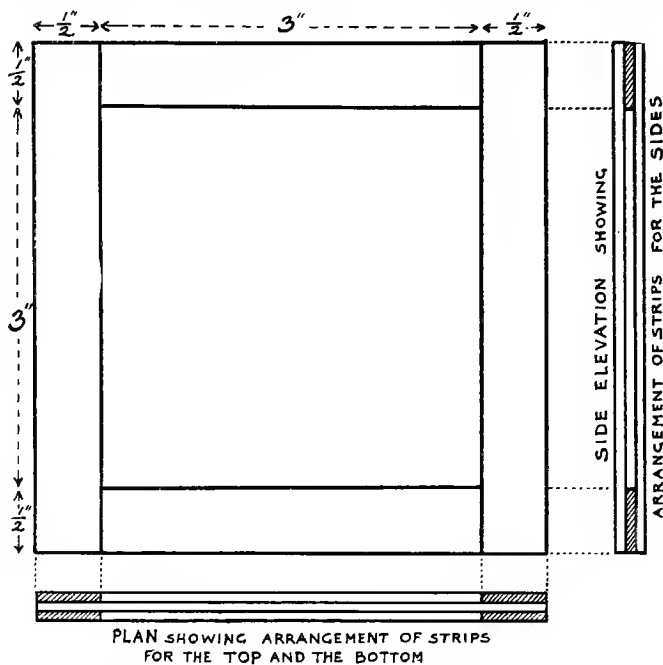


Model 15. A Square Frame with sides double thickness.



Strips required.—8 pieces, $3\frac{1}{2}$ " by $\frac{1}{2}$ ".

Procedure. — Each "side" is constructed of two strips placed as indicated in the smaller diagram. Prepare all the sides, then join two sides with a perfect right-angle between. Press in position until the gum "holds", then add remaining sides.

Model 16. A Built-up Square Frame with sides triple thickness.

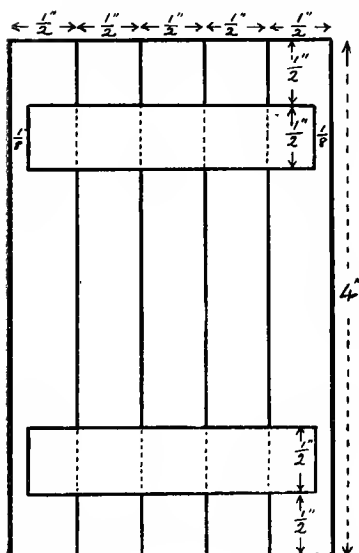
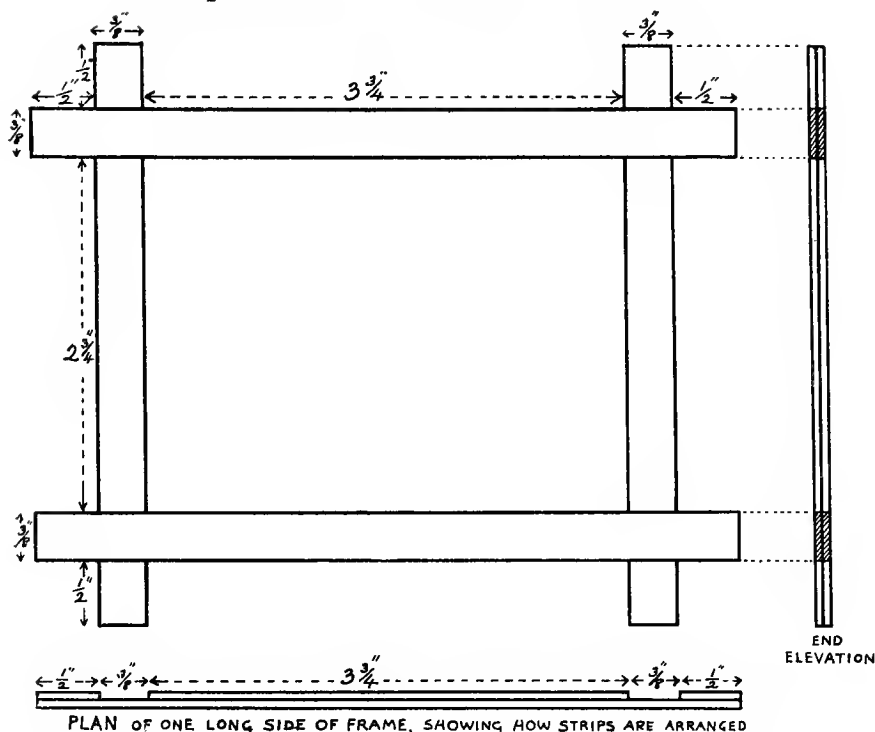
Strips required.—6 pieces, 4" by $\frac{1}{2}$ " ; 6 pieces, 3" by $\frac{1}{2}$ ".

Procedure.

Prepare each side separately, with three thicknesses of cardboard gummed together, as shown in "Side Elevation" and "Plan." Fix the top and one side in position, carefully testing the right-angle. Hold firmly, after gumming, for a minute or two, and then add the other sides.

Model 17. A built-up Oxford Frame.

Strips required.—2 pieces, $5\frac{1}{2}$ " by $\frac{3}{8}$ "; 2 pieces, $4\frac{1}{2}$ " by $\frac{3}{8}$ "; 2 pieces, $3\frac{3}{4}$ " by $\frac{3}{8}$ "; 2 pieces, $2\frac{3}{4}$ " by $\frac{3}{8}$ "; 8 pieces, $\frac{1}{2}$ " by $\frac{3}{8}$ ".

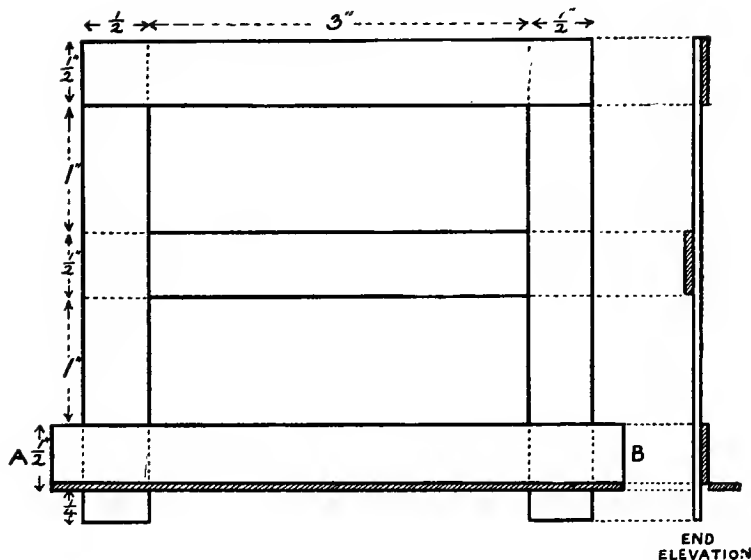


Procedure.—Each “side” of the frame should be prepared separately. The lower diagram shows strip arrangement for one of the longer sides. In forming these parts of the frame, the strips should be gummed together securely. Parts are then to be placed in position (see Model 16).

Model 18. Door for Rabbit Hutch or Shed.

Strips required.—5 pieces, 4” by $\frac{1}{2}$ ” ; 2 pieces, $2\frac{1}{4}$ ” by $\frac{1}{2}$ ”.

Procedure.—Place the long strips in position on the desk. Mark position of cross-pieces. Gum the upper cross-piece and put in place, holding securely until it adheres. Then add the other cross-piece.

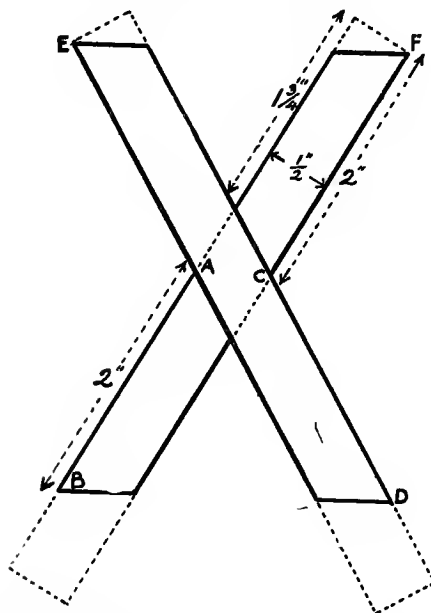
Model 19. A Music Stand.

Strips required.—3 pieces, 4" by $\frac{1}{2}$ " ; 2 pieces, $3\frac{3}{4}$ " by $\frac{1}{2}$ " ; 1 piece, $4\frac{1}{2}$ " by $\frac{3}{4}$ ".

Procedure.

Place top and sides in position. For the ledge (AB) take the strip $4\frac{1}{2}$ " by $\frac{3}{4}$ ". "score" along the whole length $\frac{1}{4}$ " from the edge, and turn up as shown in side elevation. Fix this in position, and then add the middle horizontal piece. To make the model "stand", prepare a back-leg from a strip 4" by $\frac{1}{2}$ ". Score and turn up $\frac{1}{2}$ " from the end to make a hinge, which should be strengthened by a small piece of adhesive linen or gummed tape. Gum the half-inch, thus bent over, to the middle of the top bar, at the back (not indicated in diagram).

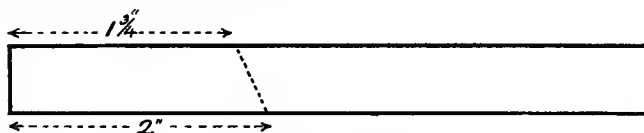
Model 20. Letter X.



Strips required.—2 pieces, 5" by $\frac{1}{2}$ ".

Procedure.

(i.) Mark each strip thus (on both sides, so that the upper mark is immediately over the lower mark).



(ii.) Using these as *angle-guides* (placing the edge of each strip in contact with a mark on the other piece), place the two strips (gumming where necessary) to form the letter, with the lower "arms" longer than the upper ones.

(iii.) Measure off AB and CD, each 2".

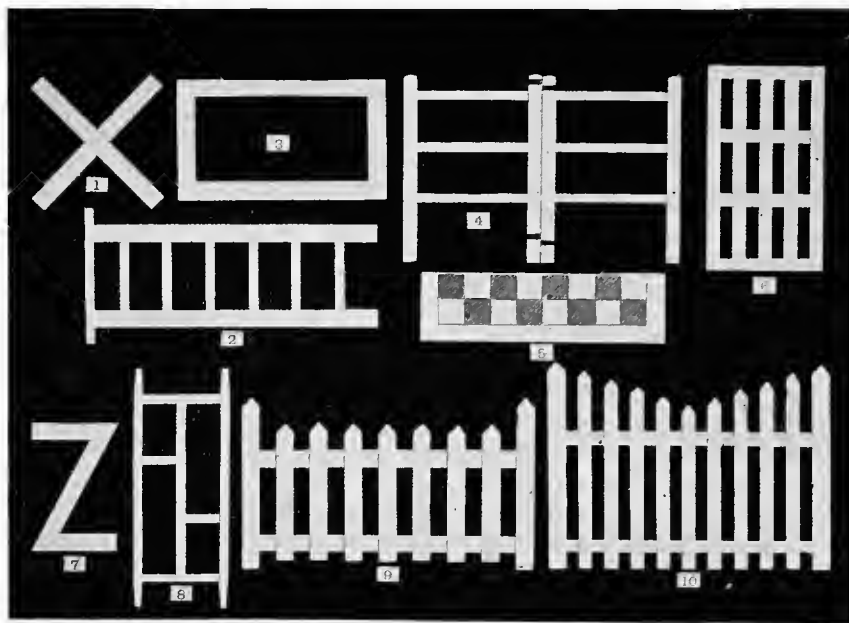
(iv.) Place the ruler along BD, and mark off portions (below the ruler) to be cut off.

(v.) Repeat with the top, placing the ruler along EF, marking the portions above the ruler to be cut off.

STRIP-CARDBOARD WORK. Scheme II.

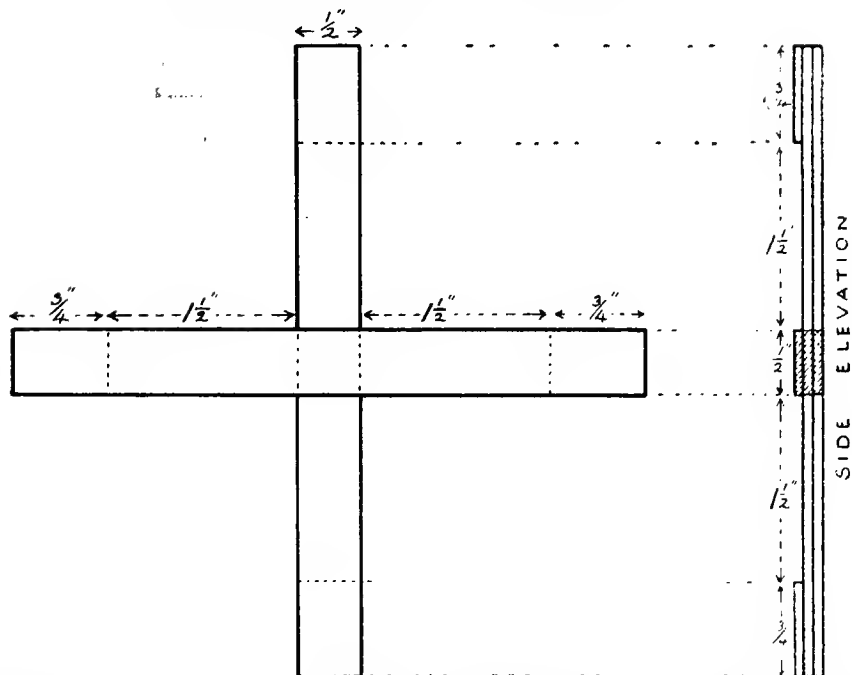
Introduction to Scheme.

See Introduction to Scheme I, page 70.



Models 1 to 10.

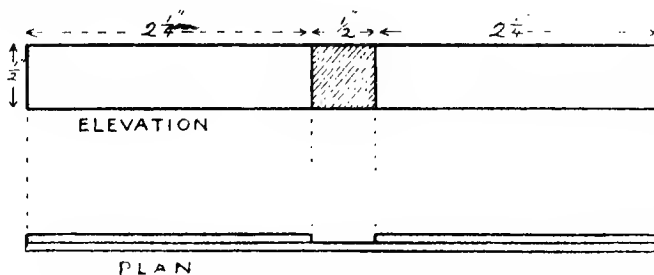
Model 1. A built-up Plant-Stand.



Strips required:—2 pieces, 5" by $\frac{1}{2}$ "; 4 pieces, $2\frac{1}{4}$ " by $\frac{1}{2}$ "; 4 pieces, $\frac{3}{4}$ " by $\frac{1}{2}$.

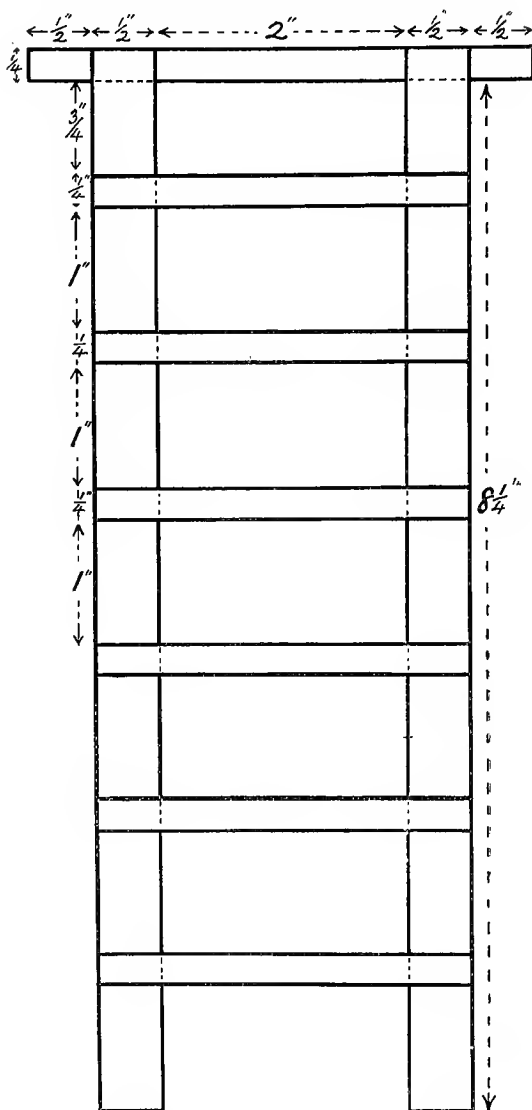
Procedure.—(1) Construct each "arm" of the plant-stand as shown below, the strips being securely gummed together.

Note.—Where diagrams indicate thickness of cardboard, this is not intended to be *exact*.



(2) Fix these two arms at right angles, the space in the centre of one fitting into the corresponding place in the other.

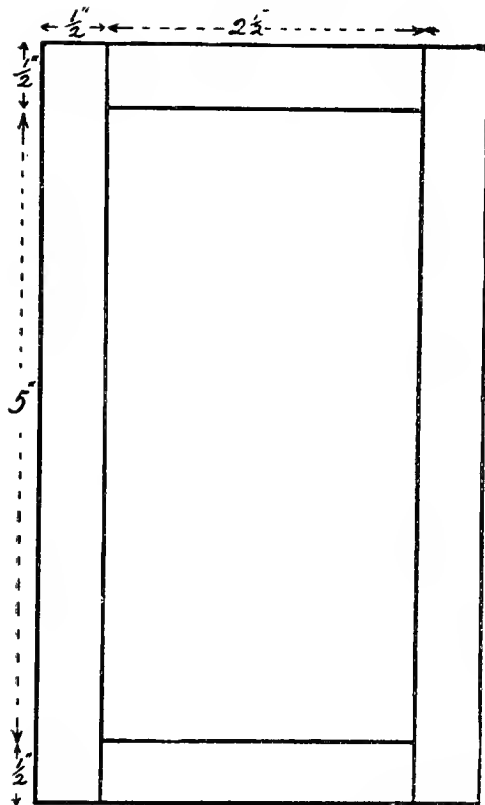
(3) Place the four strips ($\frac{3}{4}$ " by $\frac{1}{2}$ ") in position to form "feet."

Model 2. A Simple Step-ladder.

Strips Required :—2 pieces, $8\frac{1}{4}"$ by $\frac{1}{4}"$; 6 pieces, $3"$ by $\frac{1}{4}"$; 1 piece, $4"$ by $\frac{1}{4}"$.

Procedure.—Fix sides and top step, then add the other steps, and finally fix the cross-piece at the top

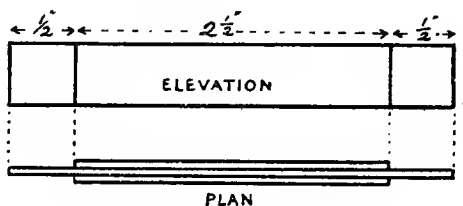
Model 3. A built-up Door-frame.



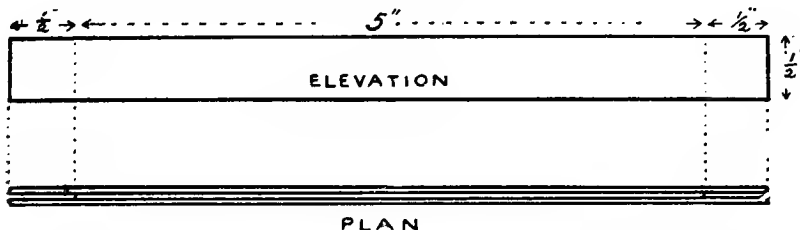
Strips required.—4 pieces, 6" by $\frac{1}{2}$ " ;
2 pieces, 5" by $\frac{1}{2}$ " ; $2\frac{1}{2}$ pieces, $3\frac{1}{2}$ "
by $\frac{1}{2}$ " ; 4 pieces, $2\frac{1}{2}$ " by $\frac{1}{2}$ ".

Procedure (See Scheme I, Model 16).

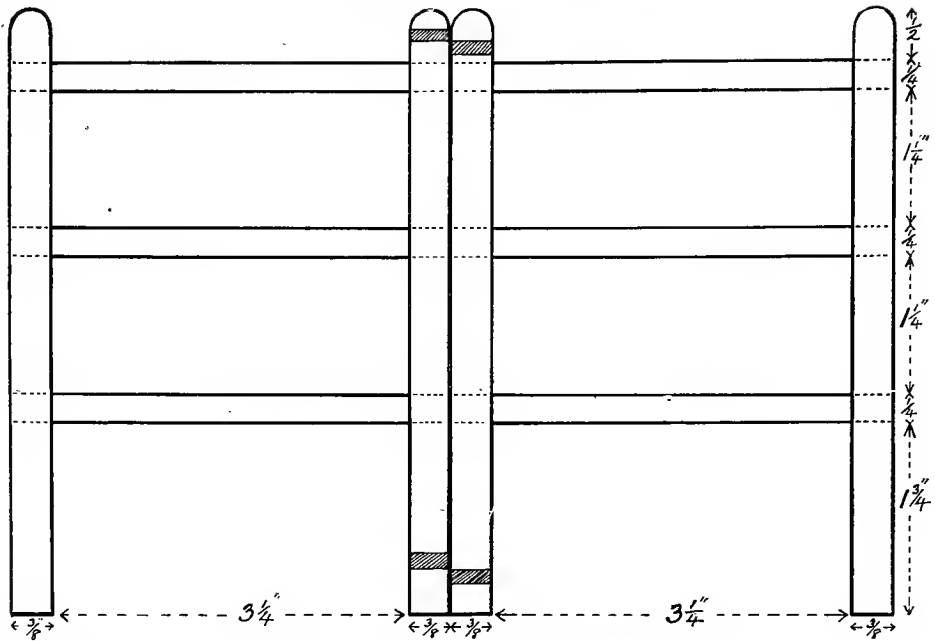
(1) Prepare top and bottom bars thus :—



(2) Prepare each side-bar thus :—



(3) Fix the top and one side together with a perfect right-angle between them, repeat with the other two bars, and then place the two halves in position to complete the model.

Model 4. A Clothes-horse.

Strips required.—4 pieces, $5\frac{1}{2}$ " by $\frac{3}{8}$ "; 6 pieces, 4" by $\frac{1}{4}$ "

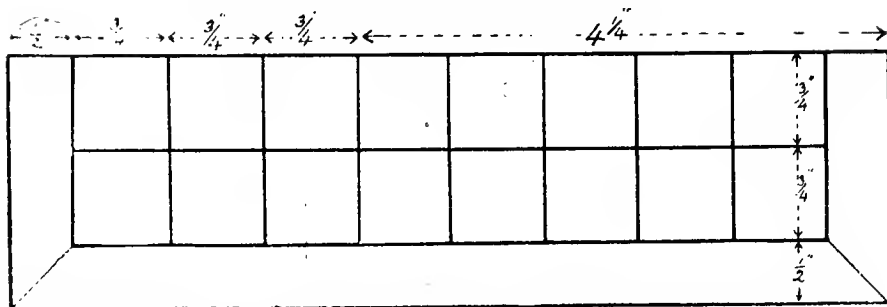
Procedure.

Prepare each half, rounding the tops of the uprights, and then fix paper (or linen) strips in position to form hinges.

The diagram below shows an arrangement of strips of paper or tape to



make a "double hinge." Each strip is placed *over* one upright and *under* the other.

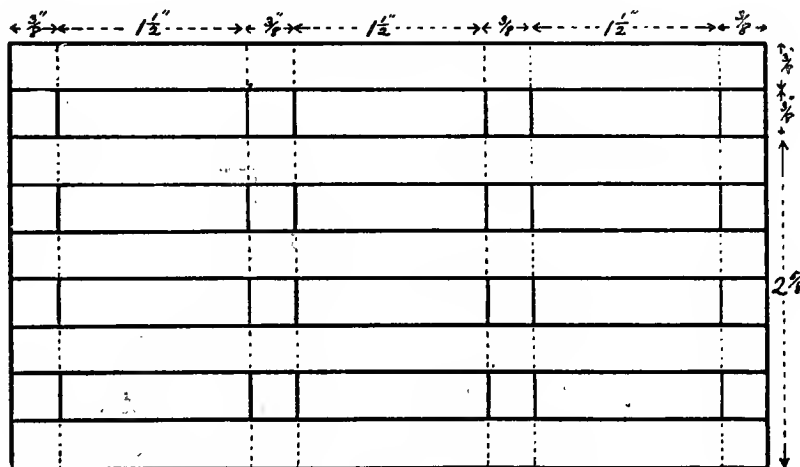
Model 5. A Tiled Hearth.

Strips required.—1 piece, 7" by $\frac{1}{2}$ "; 2 pieces, 2" by $\frac{1}{2}$ "; 16 pieces, $\frac{3}{4}$ " by $\frac{3}{4}$ ".

Procedure.

- (1) Cut strips for tiles and outside framework.
- (2) Gum the latter in position on a sheet of paper, pressing carefully until fixed. Then gum each tile and put in position.

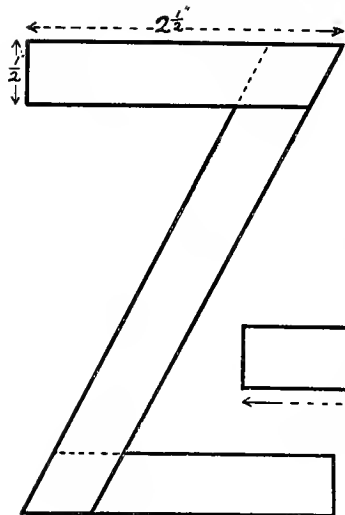
[In making the mitred corners, draw the diagonal of a square at the end of each strip requiring it].

Model 6. A Bathroom Mat.

Strips required.—5 pieces, 6" by $\frac{3}{8}$ "; 4 pieces, $3\frac{3}{8}$ " by $\frac{3}{8}$ ".

Procedure.

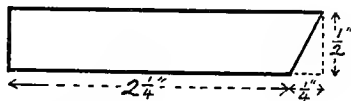
Fix the four outer strips first, with perfect right angles; then add the five inner strips.

Model 7. Letter Z.**Strips required.**

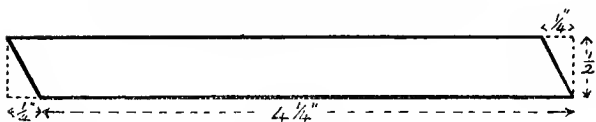
1 piece $4\frac{1}{2}$ " by $\frac{1}{2}$ "; 2 pieces, $2\frac{1}{2}$ " by $\frac{1}{2}$ ".

Procedure.

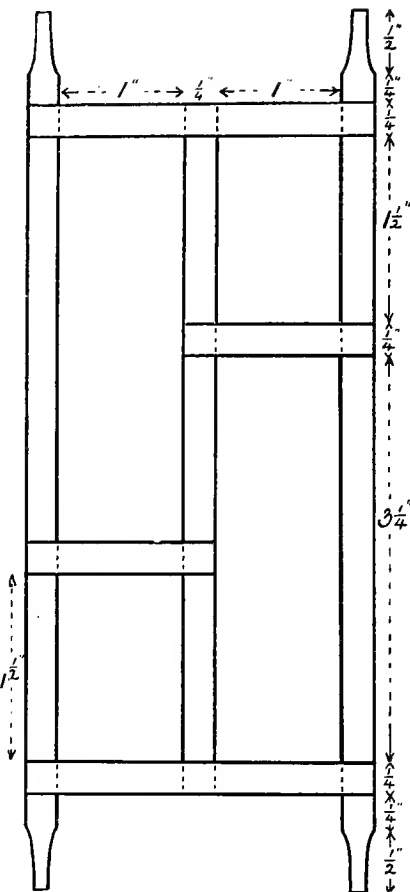
(1) Prepare top and bottom pieces thus:—



(2) Prepare the oblique strip thus:—



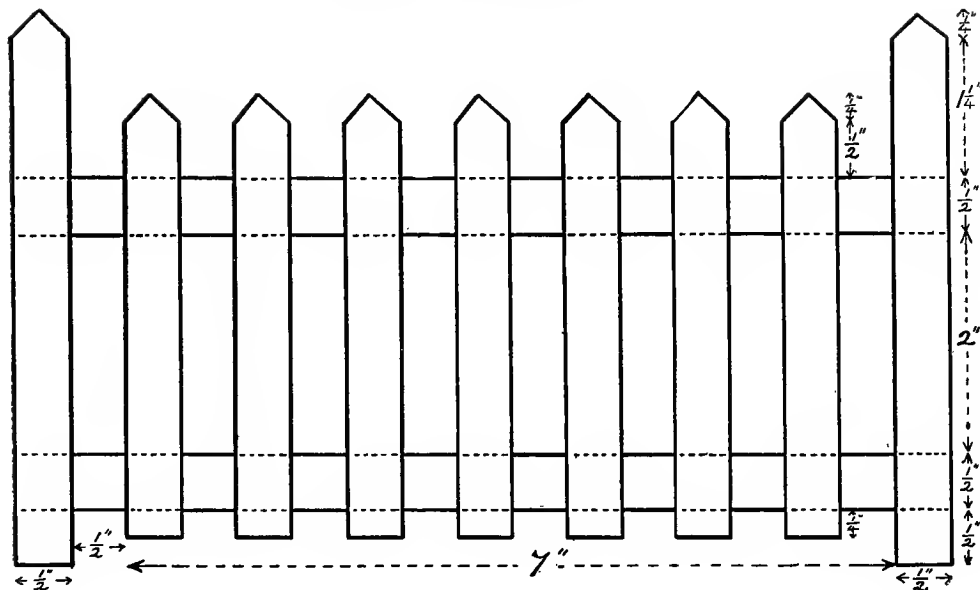
(3) Fix the top strip and the oblique strip; then add the bottom piece.

**Model 8. A "Carrier" for Plants, Meat, etc.**

Strips required.—2 pieces, 7" by $\frac{1}{4}$ "; 2 pieces, $2\frac{3}{4}$ " by $\frac{1}{4}$ "; 2 pieces, $1\frac{1}{2}$ " by $\frac{1}{4}$ "; 1 piece, $5\frac{1}{2}$ " by $\frac{1}{4}$ ".

Procedure.

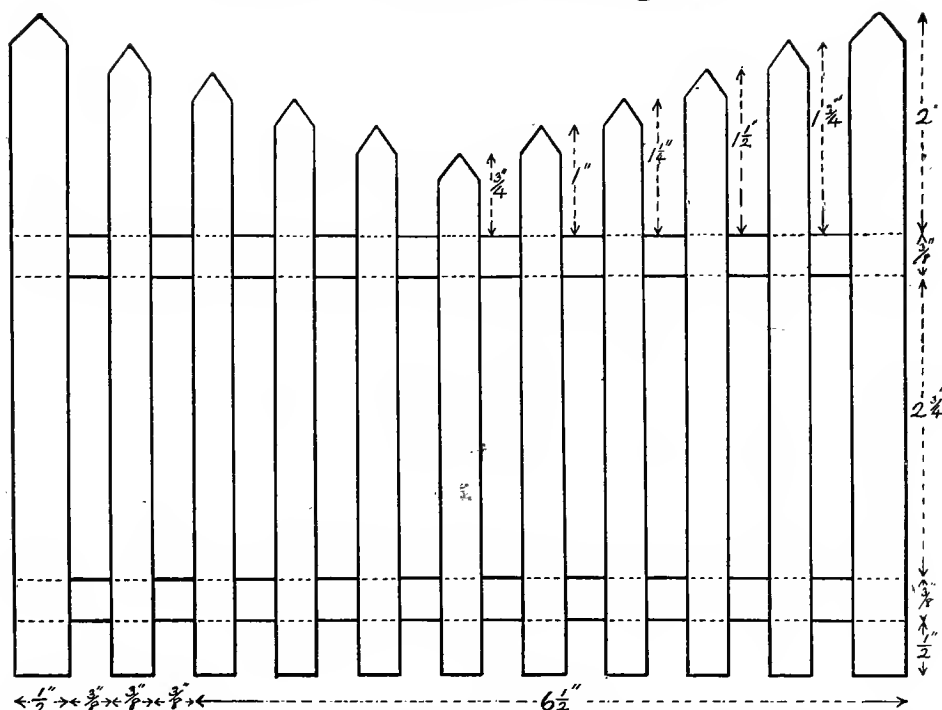
Cut strips of the required length, and shape the "handles" to the two longer pieces. Fix the four outside strips in position first, then add the long middle strip, and finally fix the two short pieces.

Model 9. Fencing Rails.

Strips required.—2 pieces, $8\frac{1}{2}''$ by $\frac{1}{2}''$; 2 pieces, $5''$ by $\frac{1}{2}''$; 7 pieces, $4''$ by $\frac{1}{2}''$.

Procedure.

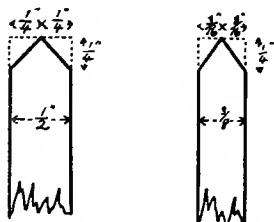
- (1) Cut the rails to proper length and make the pointed tops.
- (2) Fix the long upright rails and the two horizontal rails first; then add the short upright rails after marking their position.

Model 10. Ornamental Fencing Rails.

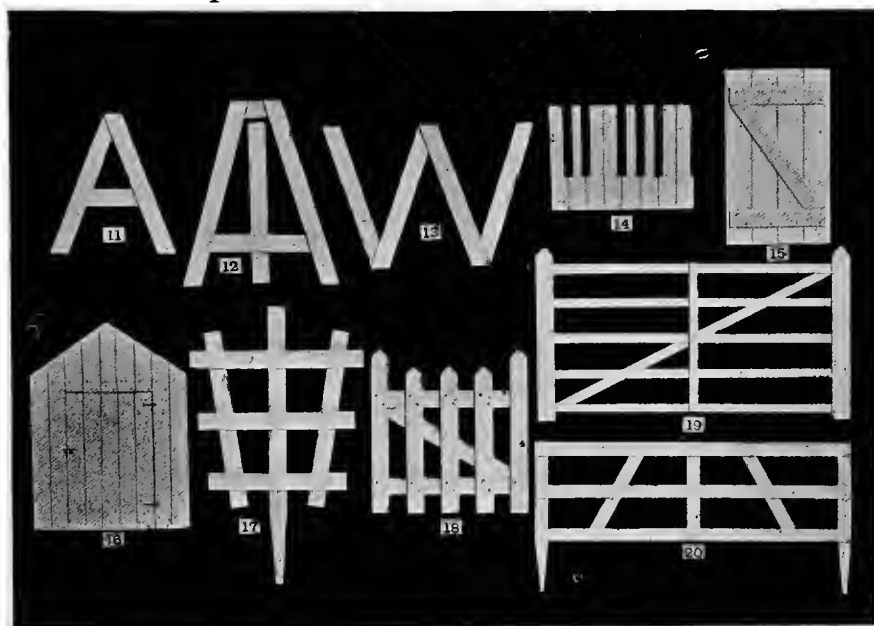
Strips required.—2 pieces, 6" by $\frac{1}{2}$ "; 2 pieces, $5\frac{3}{4}$ " by $\frac{3}{8}$ "; 2 pieces, $5\frac{1}{2}$ " by $\frac{3}{8}$ "; 2 pieces, $5\frac{1}{4}$ " by $\frac{3}{8}$ "; 2 pieces, 5" by $\frac{3}{8}$ "; 2 pieces, $8\frac{1}{8}$ " by $\frac{3}{8}$ "; 1 piece, $4\frac{3}{4}$ " by $\frac{3}{8}$ ".

Procedure.

(1) Prepare the strips, of required length; then make pointed tops thus:—



- (2) Fix outside rails and horizontal rails in position.
- (3) Add inner rails, after marking their position.

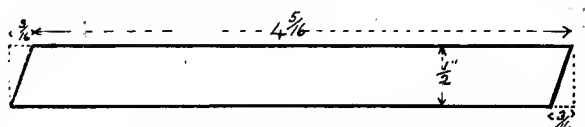
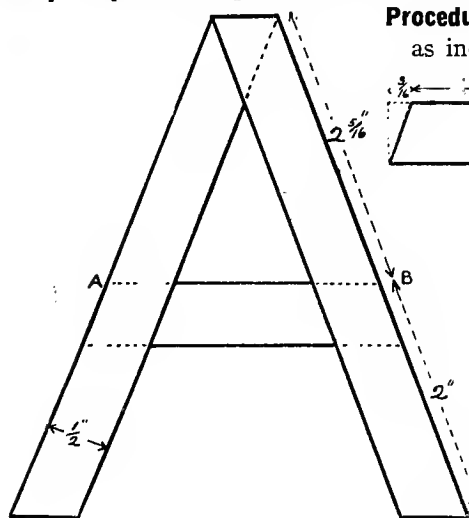


Models 11 to 20.

Model 11. Letter A.

Strips required.—2 pieces, $4\frac{1}{2}$ " by $\frac{1}{2}$ "; 1 piece, about 3" by $\frac{1}{2}$ ".

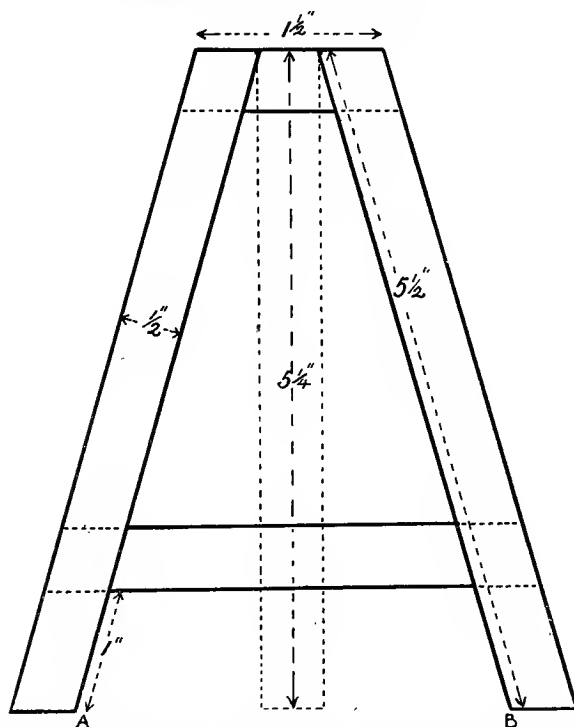
Procedure.—(1) Prepare each of the sloping sides as indicated below.



(2) Fix these in position and hold until firmly gummed.

(3) Measure from the bottom, on each side, a distance of 2" (see A and B in diagram). This should be done on the under-side of the Model.

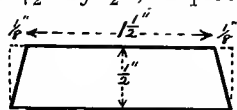
(4) Place the cross-piece in position, so that the top touches A and B. When firmly fixed, "trim" the ends with the scissors, so that the cross-piece does not project beyond the sloping sides of the letter.

Model 12. An Easel.

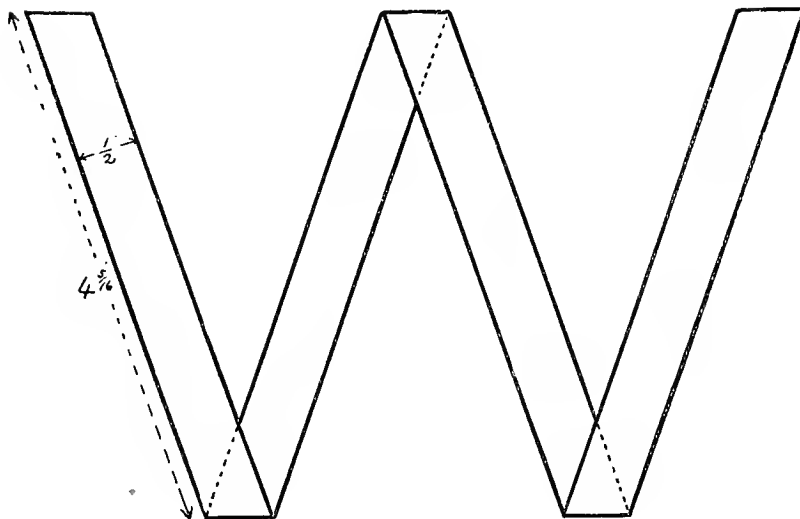
Strips required.—2 pieces, about 6" by $\frac{1}{2}$ "; 1 piece, about $4\frac{1}{2}$ " by $\frac{1}{2}$ "; 1 piece, $1\frac{3}{4}$ " by $\frac{1}{2}$ "; 1 piece, $5\frac{3}{4}$ " by $\frac{1}{2}$ ".

Procedure.

- (1) Prepare the top horizontal piece as follows:—
- (2) Lay this on the desk and fasten the sloping sides in place, afterwards cutting off the parts projecting above.
- (3) Measure along the inner side of each sloping strip a distance of $5\frac{1}{2}$ " from the top (see A and B). Place ruler along AB and mark portions to be cut off below it.
- (4) Add the lower horizontal bar, measuring along the inner side of each sloping strip a distance of 1" from the bottom (*i.e.*, from A and B), cutting off the parts overlapping at the sides.
- (5) "Score" $\frac{1}{2}$ " from one end of the strip $5\frac{3}{4}$ " by $\frac{1}{2}$ " and attach the $\frac{1}{2}$ " (bent over) to the middle of the top bar, to form a back "leg." Strengthen the hinge with a piece of adhesive linen or gummed tape.



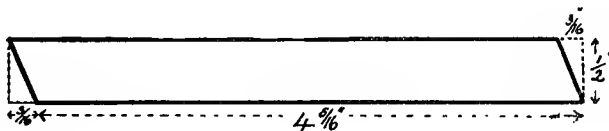
Model 13. Letter W.



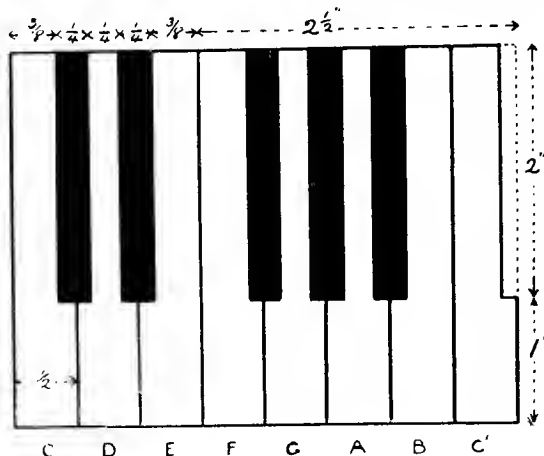
Strips required.—4 pieces, $4\frac{1}{2}''$ by $\frac{1}{2}''$.

Procedure.

(I) Prepare each piece as below:—



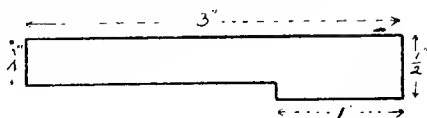
(2) Fix first and second strips in position, holding firmly until proper adhesion takes place ; then add the third, and finally the fourth, strip.

Model 14. An Octave of a Piano Key-board.

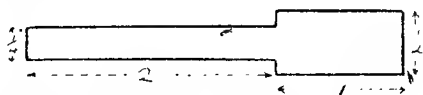
Strips required.—8 pieces, 3" by $\frac{1}{2}$ "; 5 pieces, 2" by $\frac{1}{4}$.

Procedure.

(1) Prepare, C, E, F, B, and C¹ thus :—

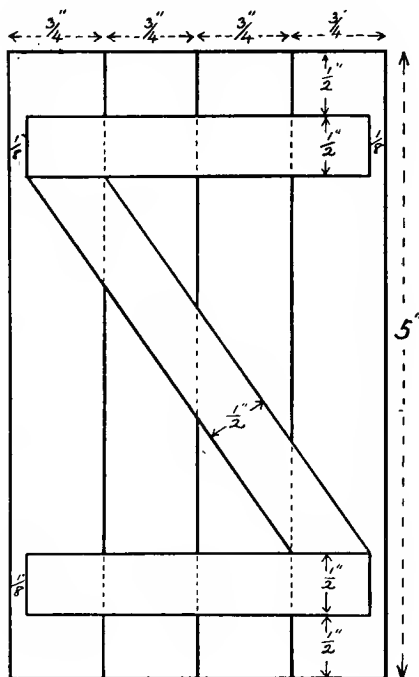


(2) Prepare D, G, and A thus :—



(3) Gum these in position on a sheet of paper.

(4) Add the strips 2" by $\frac{1}{4}$ ", first inking them over to make them black.
[This model will be found very useful in Theory of Music lessons].

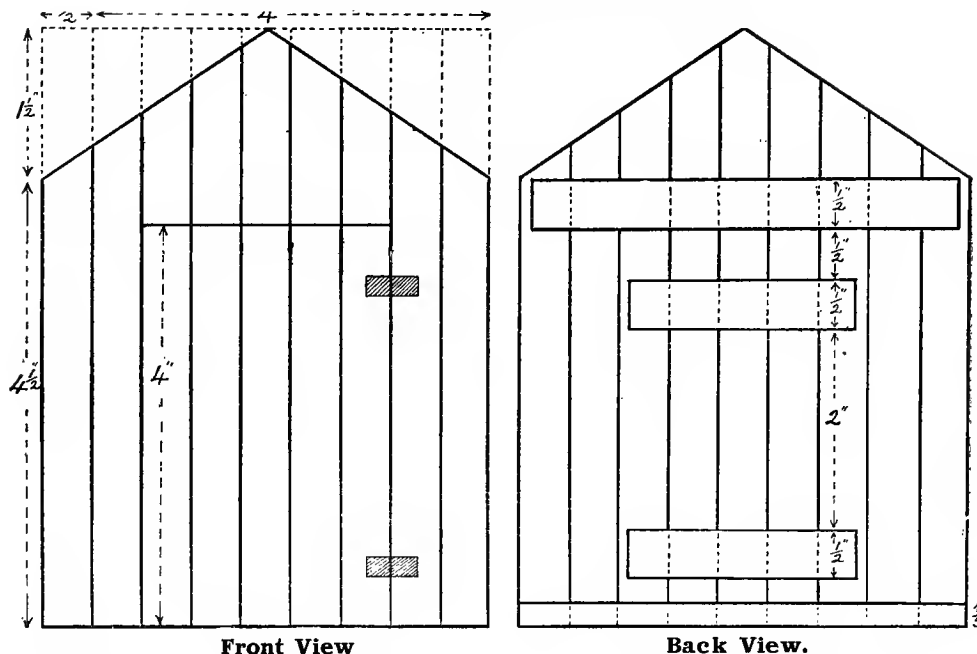
Model 15. Door for Shed.

Strips required.—4 pieces, 5" by $\frac{3}{4}$ "; 2 pieces $2\frac{3}{4}$ " by $\frac{1}{2}$ "; 1 piece, about 5" by $\frac{1}{2}$ ".

Procedure.

(1) Cut strips for the "boards" and the two cross-bars. Lay the former in position on the desk, and mark position of cross-bars, which should then be firmly gummed in position.

(2) Place the strip for the "strut" in position and mark what must be cut off the top and bottom to make it fit properly. Cut away the parts not required, and then gum the strut firmly in position.

Model 16. Front of Shed, with door.

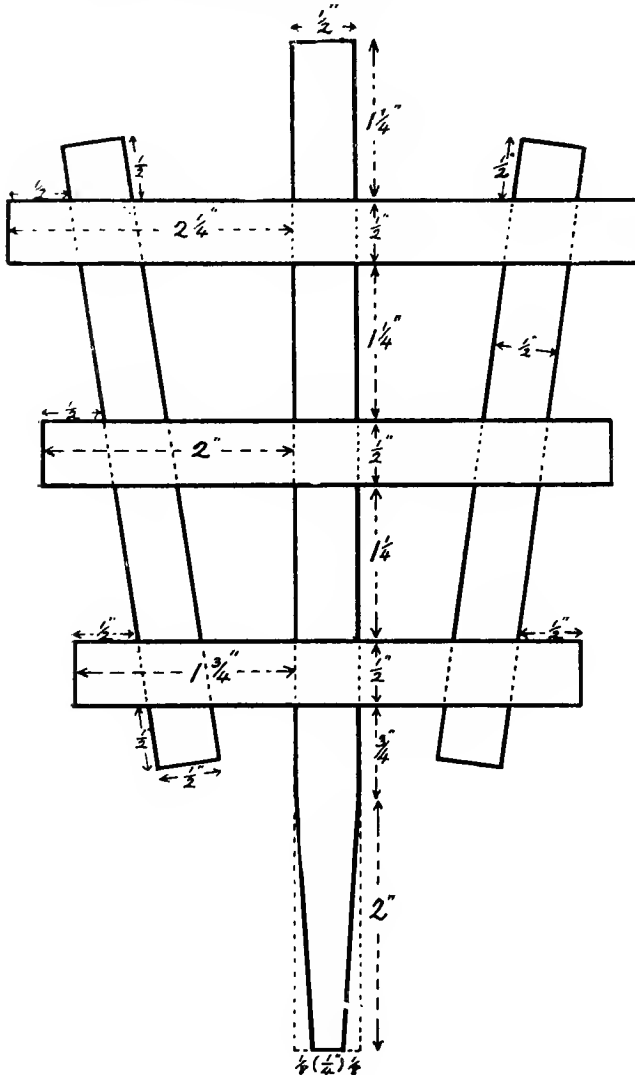
Strips required.—9 pieces, 6" by $\frac{1}{2}$ "; 2 pieces, $2\frac{1}{4}$ " by $\frac{1}{2}$ "; 1 piece, $4\frac{1}{4}$ " by $\frac{1}{2}$ "; 1 piece, $4\frac{1}{2}$ " by $\frac{1}{4}$ ".

Procedure.

- (1) Place the nine long strips side by side, draw (while thus) the sloping top of the model, and the top of the door.
- (2) Cut off the portions not required (at top of strips) and cut through the five middle strips for the door.
- (3) Place the cross-pieces ($2\frac{1}{4}$ " by $\frac{1}{2}$ ") on the door.
- (4) Place a cross-bar across the remainder of the shed-front at the bottom ($4\frac{1}{2}$ " by $\frac{1}{4}$ "), and across the top—just above where the door will be— $4\frac{1}{4}$ " by $\frac{1}{2}$ ".
- (5) Place the door in position and fix hinges made of adhesive linen.

Model 17. A Plant Support.

Strips required.—1 piece, 8" by $\frac{1}{2}$ " ; 1 piece, 5" by $\frac{1}{2}$ " ; 1 piece, $4\frac{1}{2}$ " by $\frac{1}{2}$ " ; 1 piece, 4" by $\frac{1}{2}$ " ; 2 pieces, about $5\frac{1}{2}$ " by $\frac{1}{2}$ ".

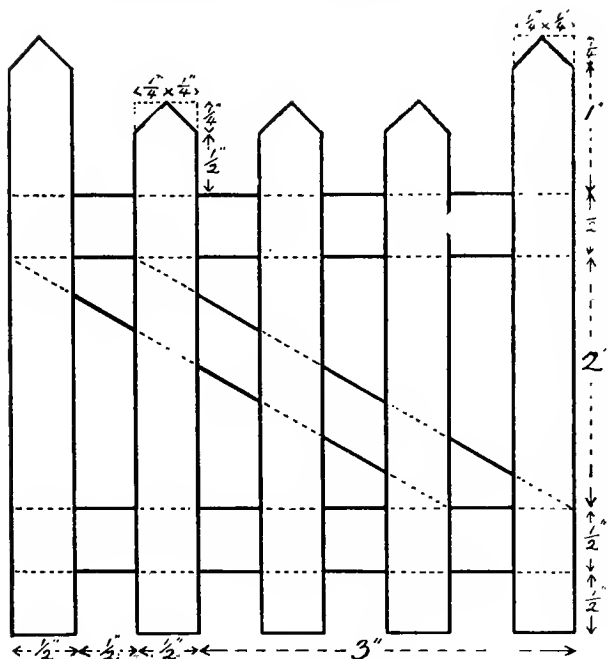
**Procedure.**

(1) After making the tapered bottom to the middle upright strip, lay this on the desk and fix the top horizontal bar in position.

(2) Add the remaining horizontal bars, securing firmly by pressure after gumming. [Note that the upright strip and the horizontal bars should first of all be *marked* where they are to come in contact with each other].

(3) Make marks $\frac{1}{2}$ " from each end of the horizontal bars, and place the oblique bars in position, to project $\frac{1}{2}$ " at top as indicated. Fix firmly by pressure after gumming.

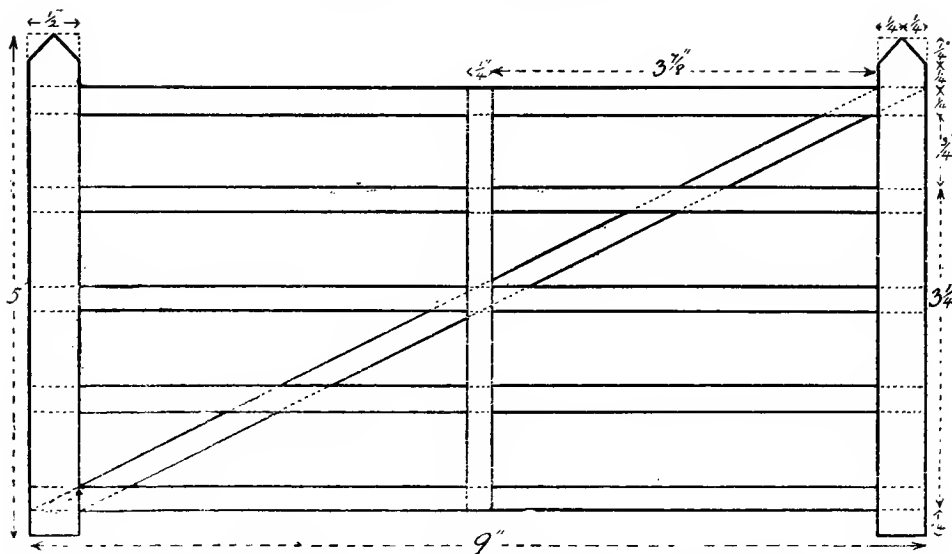
(4) Cut off a portion of the oblique bars at the bottom, so as to leave $\frac{1}{2}$ " projecting as shown.

Model 18. A Garden Gate.

Strips required.—2 pieces $4\frac{3}{4}$ " by $\frac{1}{2}$ "; 2 pieces, $4\frac{1}{2}$ " by $\frac{1}{2}$ "; 3 pieces, $4\frac{1}{4}$ " by $\frac{1}{2}$ "; 1 piece about $5\frac{1}{2}$ " by $\frac{1}{2}$ ".

Procedure.

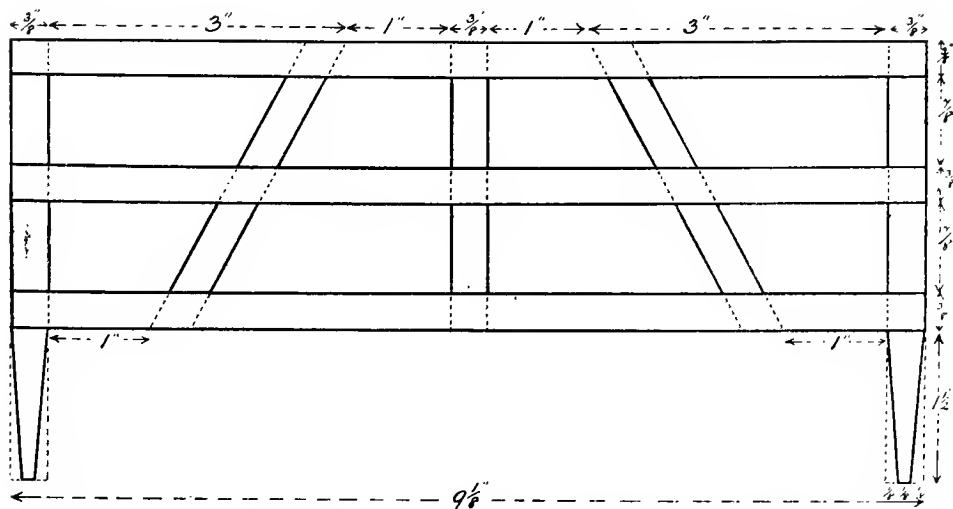
- (1) Prepare pointed tops of rails.
- (2) Mark on rails where cross-bars fit, and on the cross-bars where the rails will touch.
- (3) Fix long rails and horizontal bars in position, pressing firmly after gumming.
- (4) Fix short rails in position.
- (5) Prepare and fix the "strut" (see Procedure to Model 15), from the strip $5\frac{1}{2}$ " by $\frac{1}{2}$ ".

Model 19. A Field Gate.

Strips required.—5 pieces, 9" by $\frac{1}{4}$ "; 2 pieces, 5" by $\frac{1}{2}$ "; 1 piece, $4\frac{1}{4}$ " by $\frac{1}{4}$ "; 1 piece, $10\frac{1}{2}$ " by $\frac{1}{4}$ ".

Procedure.

- (1) Prepare pointed tops to long uprights, and mark places of contact on posts and rails.
- (2) Fix long uprights and top-bar in position, then add the bottom bar, and finally arrange the remaining three horizontal bars.
- (3) Mark the position for, and fix, the middle upright.
- (4) Place the strip $10\frac{1}{2}$ " by $\frac{1}{4}$ " in position to act as a "strut," marking what has to be cut off at the top and the bottom; trim with the scissors and fix in position, pressing firmly until it adheres securely.

Model 20. A Hurdle.

Strips required.—3 pieces, $9\frac{1}{8}"$ by $\frac{3}{8}"$; 2 pieces, $4\frac{3}{8}"$ by $\frac{3}{8}"$; 2 pieces, $3\frac{3}{4}"$ by $\frac{3}{8}"$; 1 piece, $2\frac{7}{8}"$ by $\frac{3}{8}"$.

Procedure.

- (1) Prepare the tapering base of each long upright, and mark places for bars.
- (2) Fix these uprights and the top bar in position, firmly fixing by pressure after gumming.
- (3) Add the other horizontal bars and then the middle upright.
- (4) On the top bar mark $1"$ on each side of the middle upright, and on the lower edge of the bottom bar mark $1"$ from each long upright. Place the oblique bars in position (as in diagram) to touch these marks; then cut off the pieces projecting above and below.

THIN=CARDBOARD WORK. Scheme I.

Introduction to Scheme.

Tools.—Each child should have a pair of good scissors, a scoring knife, and an accurately graduated ruler. *If funds permit*, steel rulers should be provided, as these admit of greater accuracy. For young children's work, knives are not recommended. In this work, children might be taught to use Set Squares for forming right-angles.

Material.—Thin Cardboard (or thick "Carton Paper") in various colours.

In addition to this, adhesive tape or linen binding-strips (also in various colours) will be required.

Both the above are fairly expensive, so, for the first few models, old exercise-book covers may be used, gummed paper being used in place of binding strips. If a child makes a good model in this old material, he (or she) should be allowed, as a special reward, to use "proper materials" for the next model. This will prove an incentive to good work.

Interpretation of diagrams.

1. All the lines indicated in the diagrams are to be drawn.
2. Lines for cutting are indicated thus 
3. Lines left on the model after waste material has been cut away show where folds have to be made, *after scoring*.

Procedure for each lesson.

1. Examination of complete model and blackboard diagram. [Note variety of procedure indicated in the preface to the book]. The steps to be taken in drawing should be suggested by the children under the teacher's guidance.
2. Drawing of diagrams by children.
3. Cutting away the portions not required.
4. Scoring where folds have to be made. This is essential for good results, and should be done very carefully. Blunt pocket-knives make admirable scoring tools.

Note that the scoring should be done on the side of the material *opposite to the direction of the fold*, so that the scoring always appears on the outside of the fold.

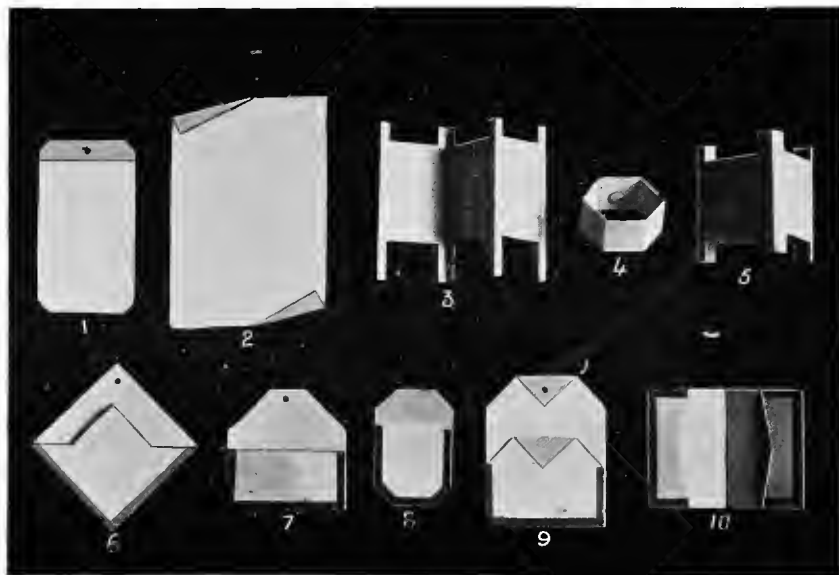
5. Folding to complete the model.

6. Placing binding-strips in position. The adhesive linen tape recommended is supplied in strips 1" wide. These should be cut down the middle, as strips $\frac{1}{2}$ " wide are necessary for binding.

The children should measure and cut off the pieces as they require them. The strips should then be folded down the middle thus, *both backward and forward*, pressing firmly on the desk. In fixing, *one side* ($\frac{1}{4}$ ") should be moistened, fixed, and held firmly in position until it adheres. *After this*, the other half of the strip should be treated in a similar way. If moistened too much, the strips will not adhere readily, in which case a *light* application of gum should be made.



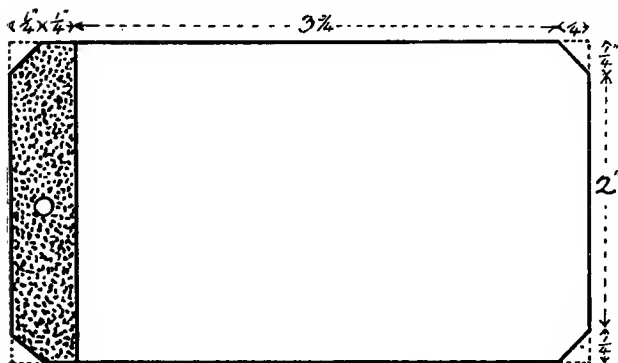
In occasional models, strips will need "trimming"; this should be done when the strips are securely fixed in position.



Models 1 to 10.

Model 1. A Luggage Label.

From a rectangle, $4\frac{1}{2}$ " by $2\frac{1}{2}$ ", and another piece $2\frac{1}{2}$ " by 1".



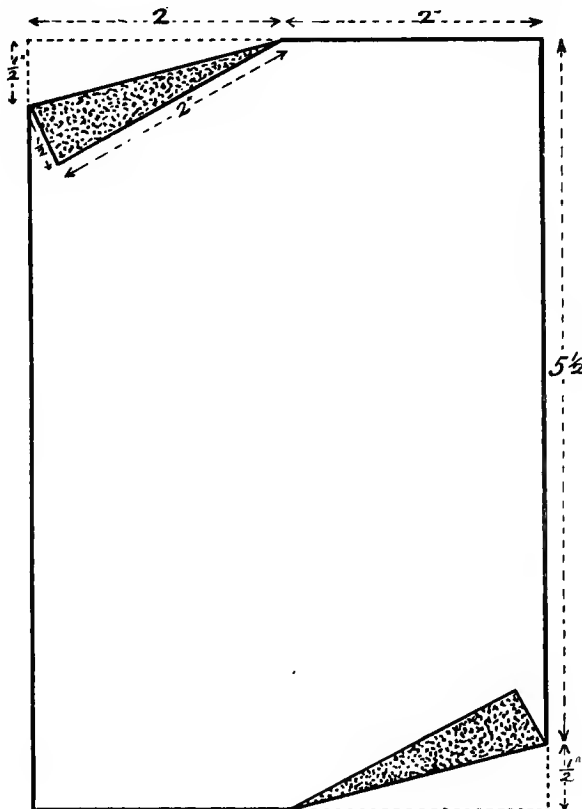
The dotted shading shows a piece of cardboard gummed to the label to give additional strength at the tying end. A similar piece is gummed to the under-side of the label, so that the string hole must be punched through three thicknesses.

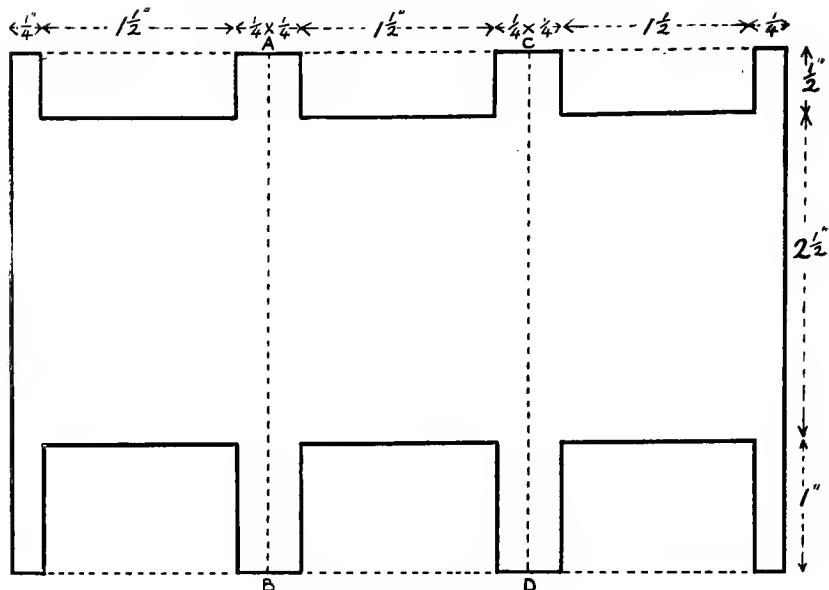
Model 2.
A Programme or
Notice Card.

From a rectangle, 6" by 4".

Procedure.—Prepare the rectangle. Then cut off corner pieces. From another piece of cardboard (of a different colour), cut portions to "overlap," which should be gummed to the larger sheet in the position shown by dotted shading.

Note that if two children sitting near each other are supplied with cardboard of different colours, the portions cut from one child's rectangle may be used by the other for "overlapping portions."

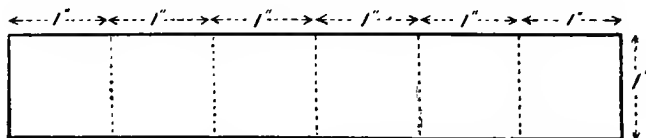


Model 3. A Three-fold Screen.

From a rectangle, 6" by 4".

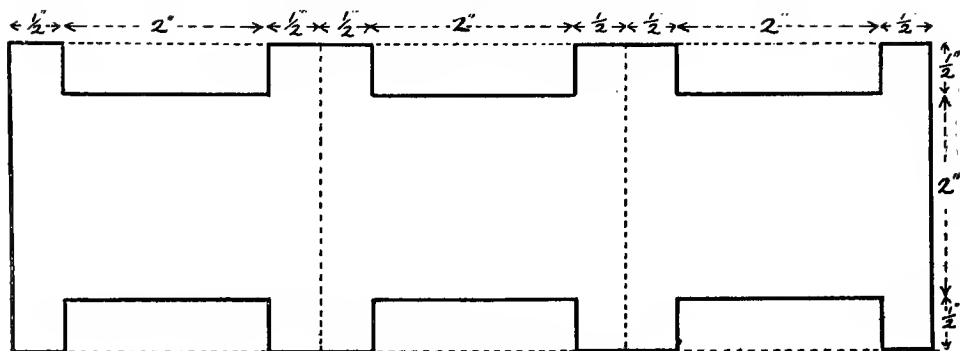
AB should be scored on the under-side, and folded *upward*; CD should be scored on the upper-side, and folded *downward*.

Note.—Accuracy in drawing will be more easily gained by making horizontal and vertical construction lines *right across* the model (not shown in the diagram).

Model 4. A Hexagonal Serviette Ring.

From a rectangle, 6" by 1".

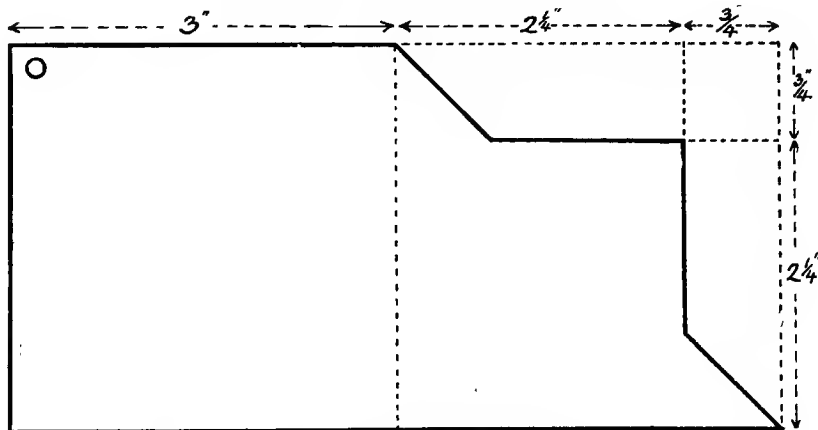
Fold at each dotted line, and fix ends in contact with each other by means of a linen strip (see Introduction to Scheme for remarks on the use of binding strips).

Model 5. A Flat-Iron Stand.

From a rectangle, 9" by 3".

Note.—In drawing, horizontal and vertical construction lines should be made *right across* the model (not shown in diagram).

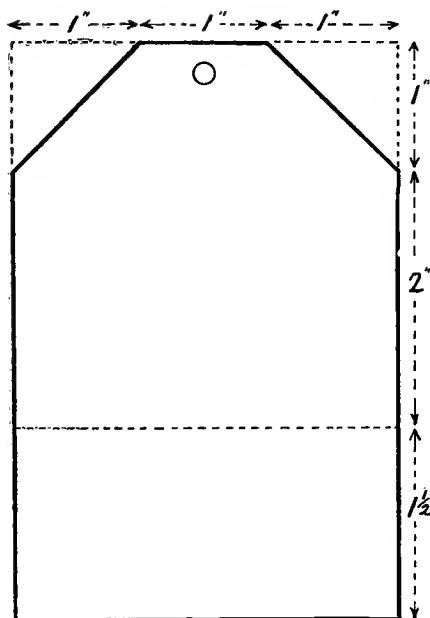
Fold and fix as in Model 4, using one binding strip 3" long.

Model 6. A Wall Pocket.

From a rectangle 6" by 3".

[*Note* that the Construction Lines in the diagram are incomplete].

Fold across the middle, after scoring, and fix with a 3" length of adhesive tape. The "fold" should have a binding strip affixed, to make both sides of the model alike. The strips will need trimming at the top *when they adhere securely*. Punch a hole for hanging.

Model 7. A Wall Tidy.

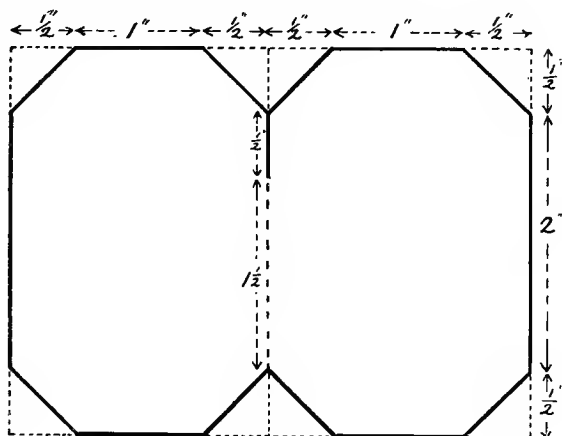
From a rectangle, $4\frac{1}{2}$ " by 3".

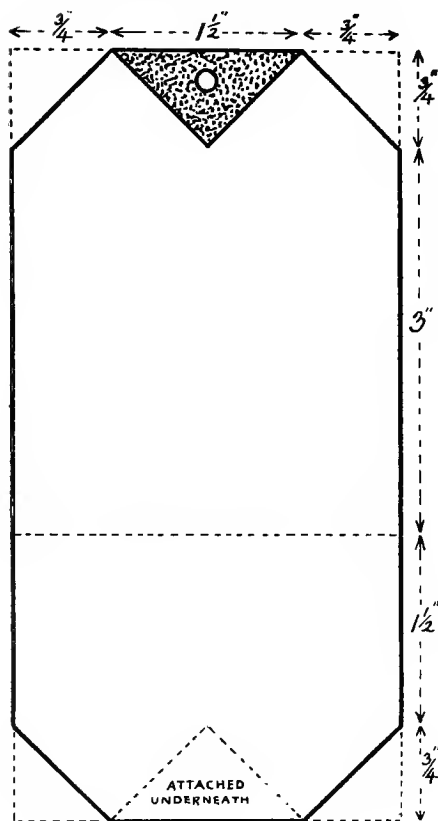
Fold across the dotted line, after scoring, and fix with two strips of adhesive tape, each $1\frac{1}{2}$ " long. An additional strip applied to the bottom of the model will give extra strength and add to the appearance, though this extra piece is not essential. Punch a hole for hanging.

Model 8. A Case for Folding Spectacles.

From a rectangle, 4" by 3".

Binding-strips are required along the bottom and up the sides to within 1" of the top (about $5\frac{1}{2}$ " in total length, put on in five pieces).



Model 9. A Wall Tidy.

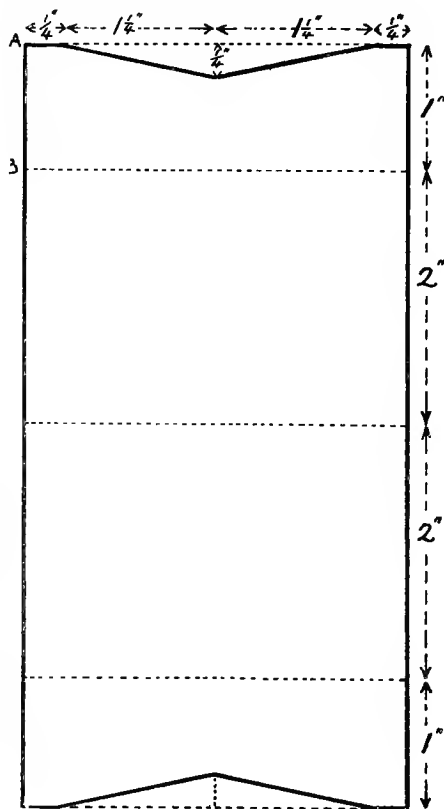
From a rectangle, 6" by 3", and a square (about $1\frac{1}{4}$ " side) of another colour, to make the two triangles added to represent corners turned down.

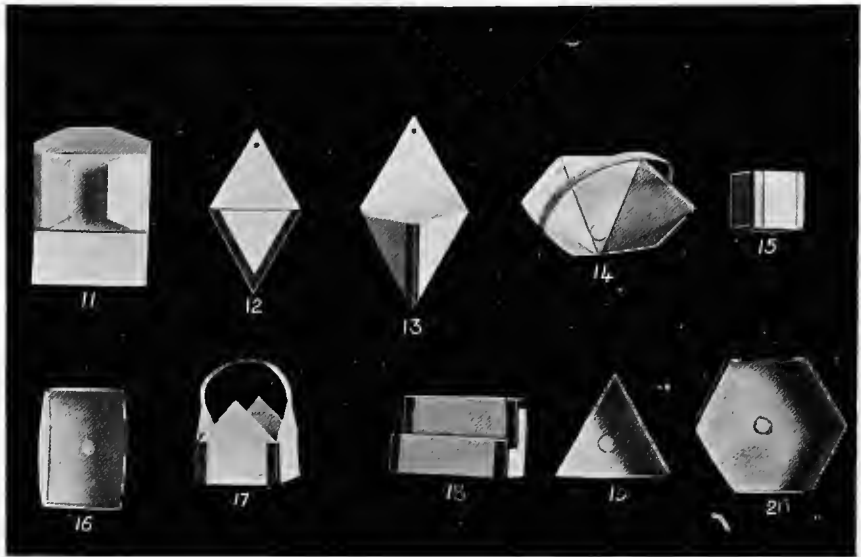
Two binding-strips, each $1\frac{1}{2}$ " long, are required for the sides, and a strip 3" long for the bottom fold, though the last-named is not essential.

Model 10. A Stamp Case.

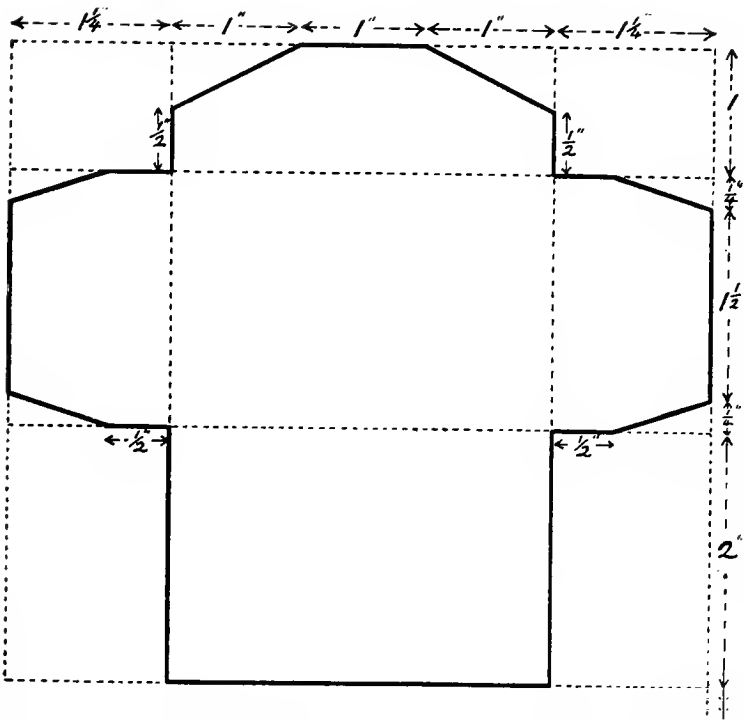
From a rectangle, 6" by 3".

Four binding-strips, each 1" long, are required for AB, and the three corresponding places. Also strips may be placed along the three folds. Four pieces, each 1" by $\frac{1}{4}$ ", placed on the "outside" of the model when folded, will add to the effect.





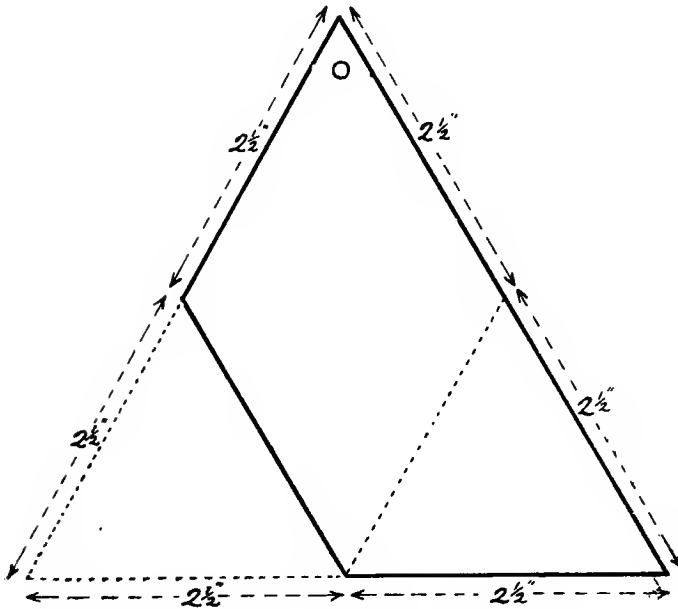
Models 11 to 20.



Model 11. A Portfolio.

From a rectangle,
5½" by 5".

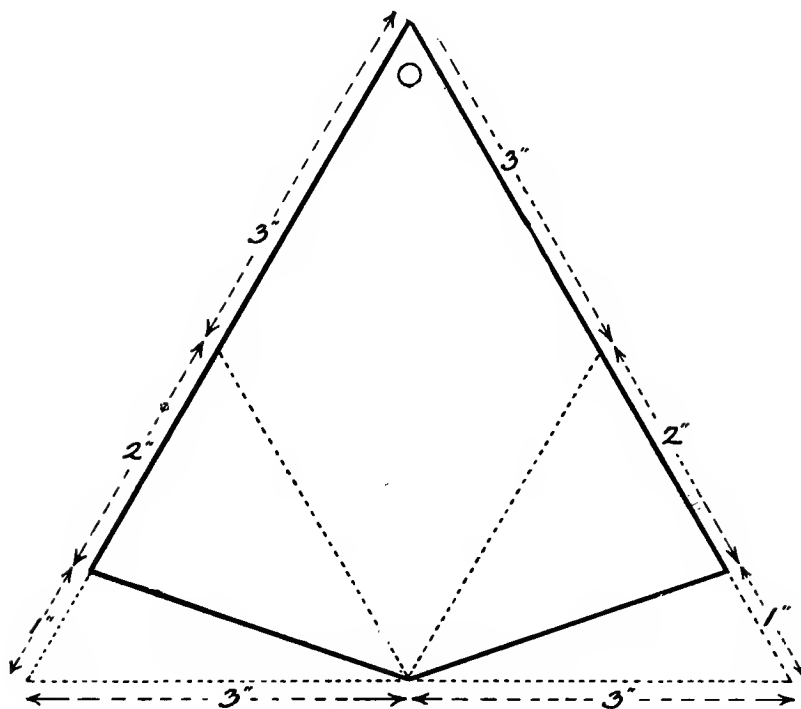
Binding-strips should be placed along all the four folds (on the "outside" of the model when folded).

Model 12. A Wall Pocket.

From an Equilateral Triangle of 5" side.

(For Construction of Equilateral Triangle, see Paper Work, Scheme 3, Model 9, page 57).

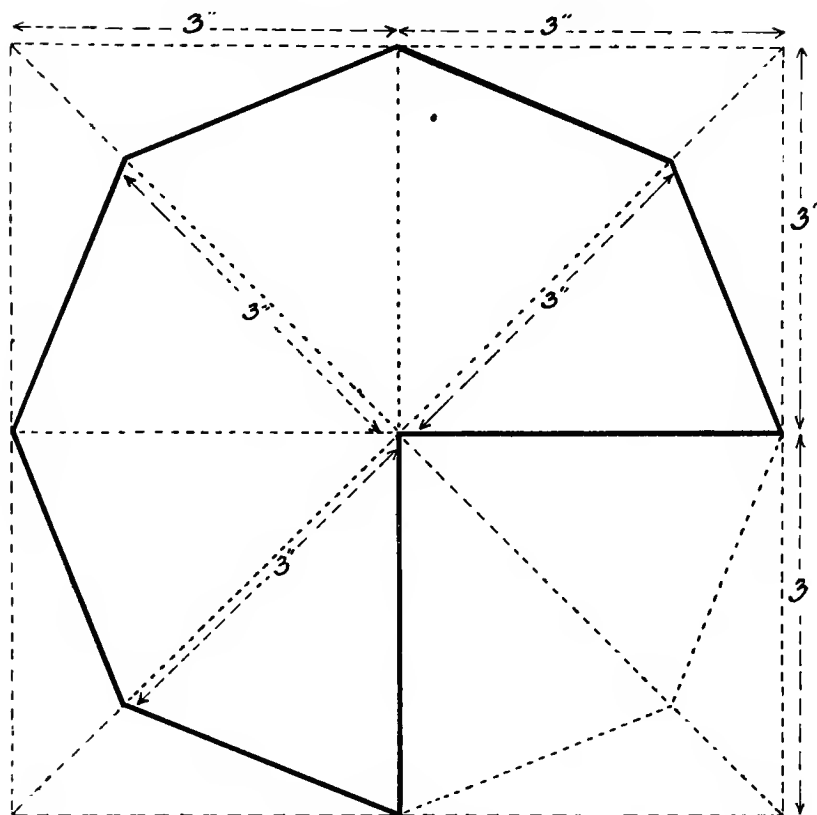
Two binding-strips, each $2\frac{1}{2}$ " long, are required. After sticking, these will need trimming, as will be seen when the model is completed. Punch a hole for hanging.

Model 13. A Hanging Tidy

From an Equilateral Triangle of 6" side.

(For Construction of Equilateral Triangle, see Paper Work, Scheme 3, Model 9, page 57).

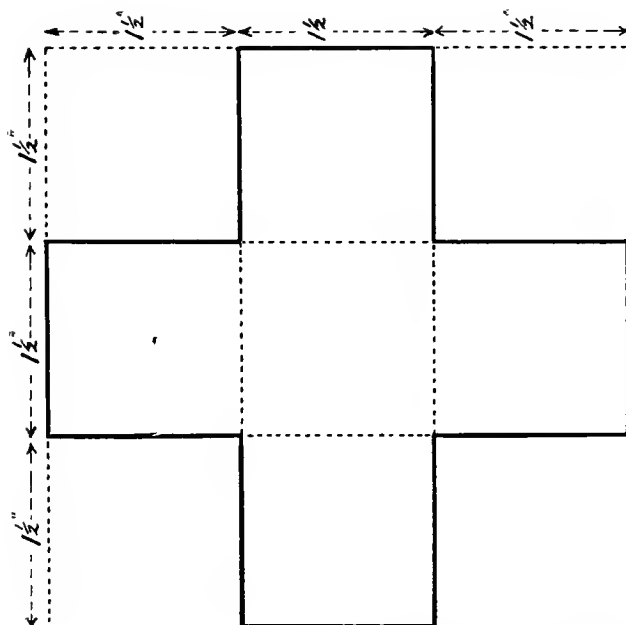
One binding strip along the front, where the two edges meet, will suffice. Punch a hole for hanging.

Model 14. A Hanging Basket.

From a 6" square.

Procedure.

Construct the square, marking diagonals and diameters. Mark 3" off from centre of square along each semi-diagonal and join to form sides of octagon. Cut away one-fourth of large square, as shown in the diagram, and after scoring where necessary, fold to form the basket. The handle should be a rectangle, 7" by $\frac{1}{4}$ ", half-an-inch at each end being used for gumming. One binding-strip, 3" long, applied where the edges meet, will be sufficient.

**Model 15.****A Cubical Box.**

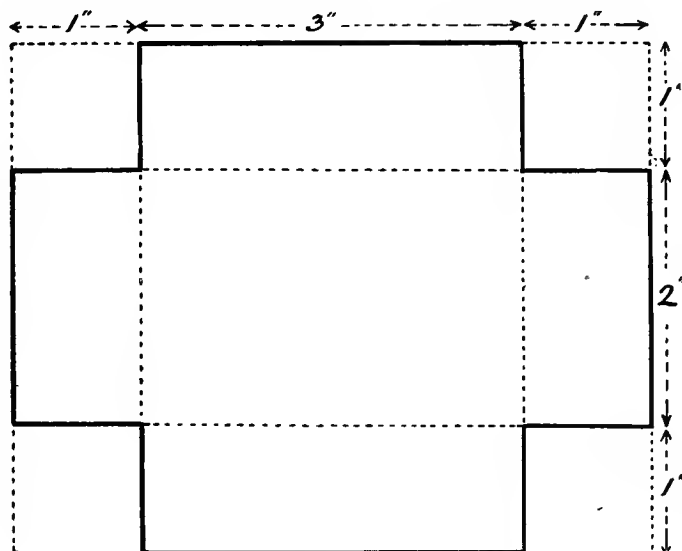
From a $4\frac{1}{2}$ " square.

Four binding-strips, each $1\frac{1}{2}$ " long, are required.

Model 16.
A
Rectangular Box.

From a rectangle,
5" by 4".

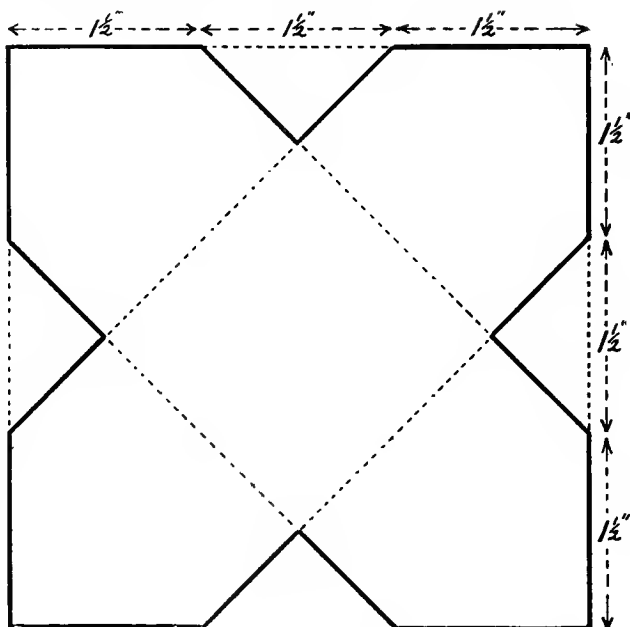
Four binding-strips,
each 1" long, are re-
quired.



Model 17. A Basket.

From a $4\frac{1}{2}$ " square.

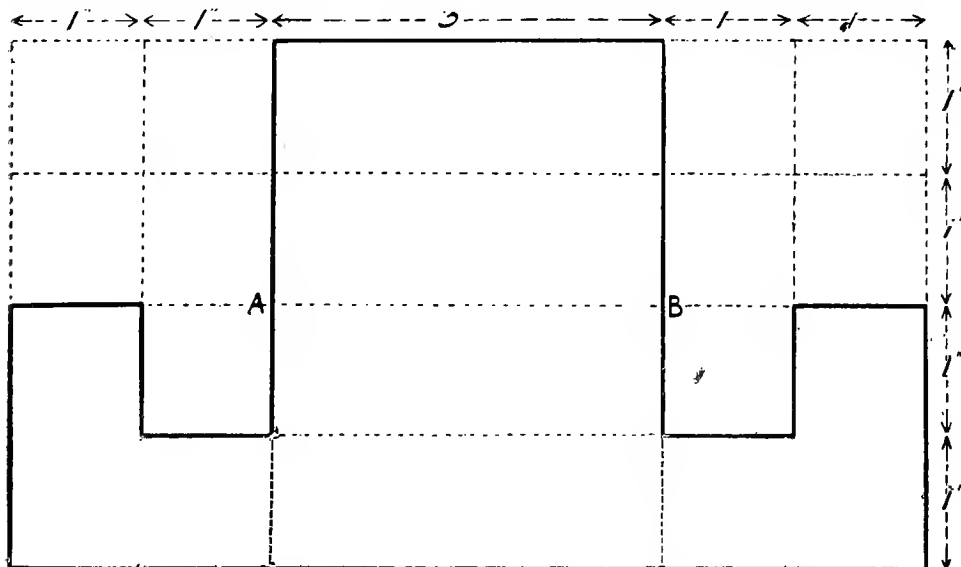
[For the handle, cut a strip $4\frac{1}{2}$ " by $\frac{1}{4}$ ", using half-an-inch at each end for gum. Fix to two opposite "points." Four binding-strips, each $1\frac{1}{4}$ " long, will suffice. After fixing, these should be trimmed with the scissors to fit the sloping sides of the model.

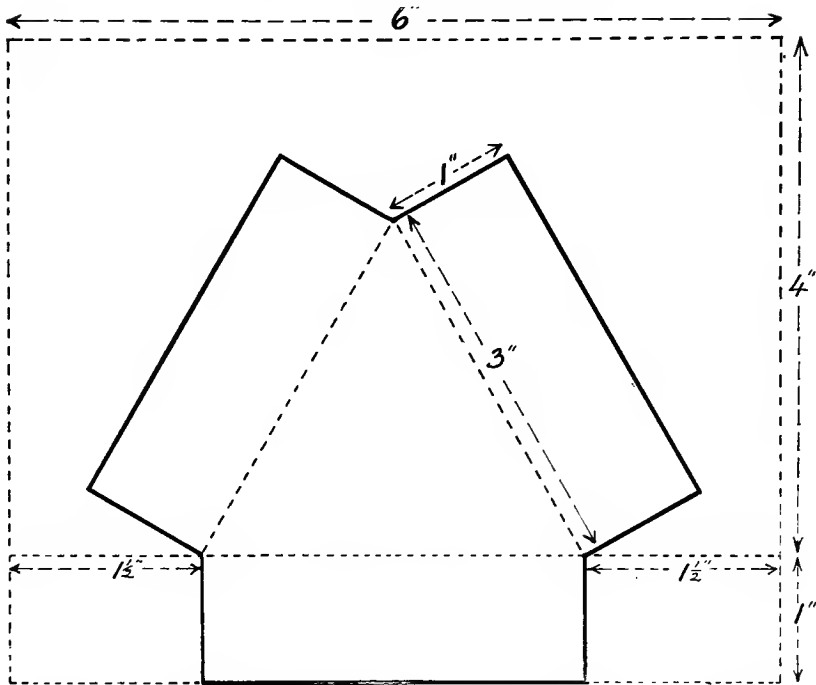
**Model 18. Two Steps.**

From a rectangle, 7" by 4".

[Fold *upward* along AB, and *downward* along all other folding-lines].

Eight binding-strips, each 1" long, are required for the "sides" of the steps.



Model 19. A Triangular Tray.

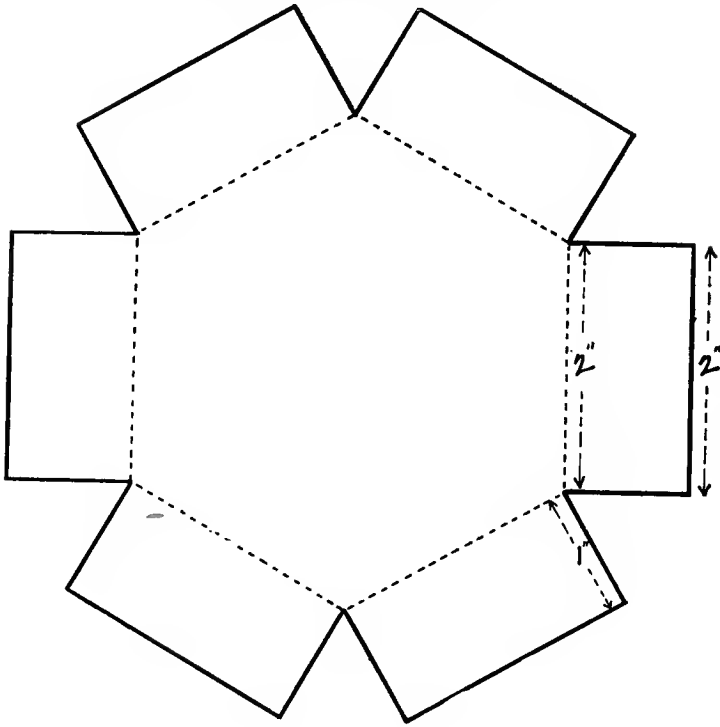
Supply a sheet of Cardboard 6" by 5".

Procedure

Construct an Equilateral Triangle of 3" side (as for models 12 and 13), and on the sides of this triangle *build-up* the rectangular sides of the tray. Score, fold, and affix adhesive paper or linen to complete.

[*Note.*—This is not the easiest way of constructing a triangular tray, but it is the *best* method (educationally), and can be utilised for trays or boxes of other sizes and shapes]. The dotted lines around the diagram show how the cardboard supplied (6" by 5") should be utilised.

Three binding-strips, each 1" long, are required.

Model 20. A Hexagonal Box or Tray.

Supply a sheet of Cardboard at least $6\frac{1}{2}$ " square.

Procedure.

Construct the hexagon by making two overlapping equilateral triangles of 6" side (as indicated in Paper Work, Scheme 3, Model 15, page 63). This should be done on a sheet of paper, then the hexagon may be pricked through to the cardboard used for this model. On the sides of this hexagon build up the rectangles for sides of box. Score, fold, and affix adhesive paper or linen strips to complete. Six strips, each 1" long, are required.

PLASTICINE WORK. Scheme I.

Introduction to Scheme.

The exercises given in this work are not meant to be followed rigidly. The various models are intended to be *suggestive*, as the work of each class in modelling with plastic material should be associated closely with Object Lessons, Nature Study, etc. The first three schemes given in the Junior Book are to train the children in :—

- (a) Manipulation of plastic material.
- (b) Observation.
- (c) Reproduction.

so as to serve as a foundation for the more difficult work in the Senior Book.

Tools.—Each child will require a Modelling Board and a boxwood Modelling Tool. To save expense, the children could use sheets of stiff cardboard, having one side varnished or covered with grease-proof paper. Perhaps the best tool for this work is one with a “flat curve” at one end, and a “round knob” at the other, of which an illustration is given. This, with “home-made tools,” will serve all purposes.



Material.—Teachers are advised to use Harbutt's Plasticine, which may be obtained in grey, yellow, green, and red. Ordinary modelling clay, although so useful for work on a large scale, is a source of endless trouble in a school. All the models for these schemes have been made in plasticine.

Storage of Material.—For hygienic reasons, each child should always use the same material, and this should be kept, when not in use, in an airtight box, bearing the name of the child. The "Savile" Modelling Box described on page xvi will be found admirable for the purpose.

These, owing to their shape, may be stored conveniently in a box or cupboard.

General Procedure for each Lesson.

(i.) Examination of the object to be modelled, dealing with :—

- (a) General outline.
- (b) Proportions.
- (c) Component parts.
- (d) Detailed markings.

Objects should be suitably placed, and should be sufficient in number, so that each child may see all details clearly.

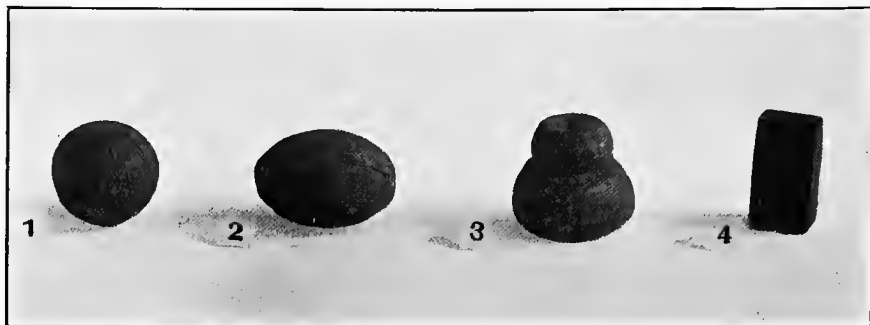
(ii.) *Working* the material to make it perfectly pliable.

(iii.) Building-up the model. (Details are supplied in connection with each exercise). Remember that the proper way of modelling is to *add* rather than to *take away*. Fingers are the best modelling "implements." The boxwood tool is to be used only for work which cannot be done by the fingers.

(iv.) Adding surface markings.

(v.) Comparison of finished model with original object. Where possible, the two should be placed side by side for this purpose. Any necessary alteration or addition should then be made.

Note.—The best specimens should be kept for exhibition, thus providing an incentive for the children to produce their best work.



Models 1 to 4.

MODEL 1.—An Association Football. (Yellow).

1. Make a sphere.
2. Mark the seams (with a pointed piece of wood, a pencil, or the modelling tool).
3. Make lacing-holes, and mark the lace by depression lines.

MODEL 2.—A Rugby Football. (Yellow).

1. Make a sphere.
2. Roll between the palms of the hands and shape as required with the fingers.
3. Add seam-markings and lace-markings as in Model 1.

MODEL 3.—A Cottage Loaf. (Yellow).

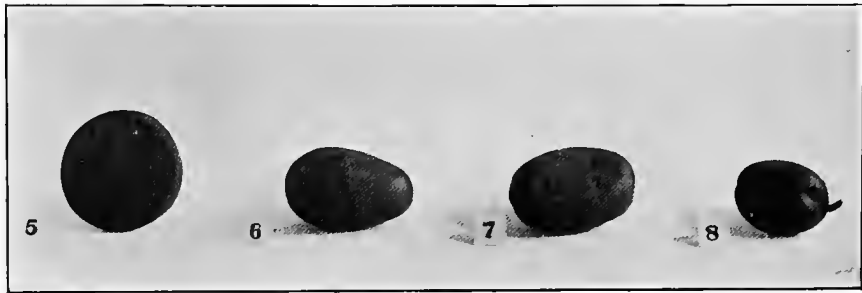
1. Divide the material into two portions of the required size.
2. Work each portion from a sphere to the required shape, and press the smaller firmly on the larger.
3. "Touch up" the model where necessary, and make the hollow in the top with the finger-tip, finishing off with the modelling tool.

MODEL 4.—A Brick. (Red).

1. Make a sphere and, by rolling, gradually elongate it.
2. Mould this *on the modelling board* to the correct shape, noting the proportions of the different sides.
3. Make mortar holes on the largest sides with a pointed piece of wood, a match-stalk, a pencil, or a pointed modelling tool.

Alternative or Supplementary Models.

1. An orange.
2. A melon.
3. A cushion.
4. A cube.

**Models 5 to 8.**

MODEL 5.—**A Biscuit.** (Yellow).

1. Make a sphere.
- 2.—Flatten on the modelling board.
- 3.—“Round” the edges carefully.
- 4.—Add holes as in Model 4.

MODEL 6.—**An Egg.** (Yellow).

1. Make a sphere.
2. Elongate—more at one end than the other—until the correct shape is obtained.
3. Press out all irregularities, *rubbing* the surface smooth with the fingers or the palm of the hand.

MODEL 7.—**A Potato.** (Yellow).

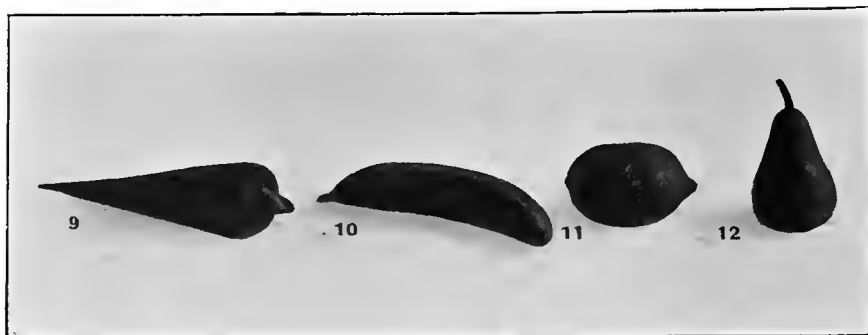
1. Make a sphere.
2. Elongate, and slightly flatten to the required shape.
3. Make any necessary *irregularities* in the shape.
4. Add “eyes,” by means of the modelling tool, using both the rounded and the sharp end.

MODEL 8.—**A Plum.** (Red).

1. Make a sphere, leaving a little material for the stalk.
2. Elongate as in Model 2, but with “blunt ends.”
3. Make the hollows at the ends.
4. Add the “furrow” on the side, being careful that this shades gradually into the sides and the hollows. (Rely chiefly on the finger-tips for obtaining the necessary smooth surface).
5. Mould and add the stalk, which should be pushed into a hole made in the proper end of the “Plum.”

Alternative or Supplementary Models.

- | | |
|------------------|--------------------|
| 5. Coat buttons. | 7. A dahlia tuber. |
| 6. Gooseberries. | 8. Cherries. |



Models 9 to 12.

MODEL 9.—A Carrot. (Red ; top green).

1. Make a sphere with the red material.
2. Elongate this to a point, by working between the fingers and rolling along the board.
3. Flatten the thick end on the board, and then make a depression there.
4. Mould and add the leaf-stalks.
5. With the sharp end of the modelling tool add any necessary markings.

MODEL 10.—A Banana. (Yellow).

1. Elongate a sphere, slightly bending to the correct shape.
2. Flattened portions should be worked with the tip of the fore-finger, pressing and then rubbing.
3. Draw-out and mould the ends, and finish-off with the modelling tool.

MODEL 11.—A Lemon. (Yellow).

1. Make a sphere and elongate slightly.
2. Draw-out and mould the ends, being particularly careful with the "knob."
3. Finish-off with the finger-tips, the modelling tool being used only for the "ends" (where necessary).

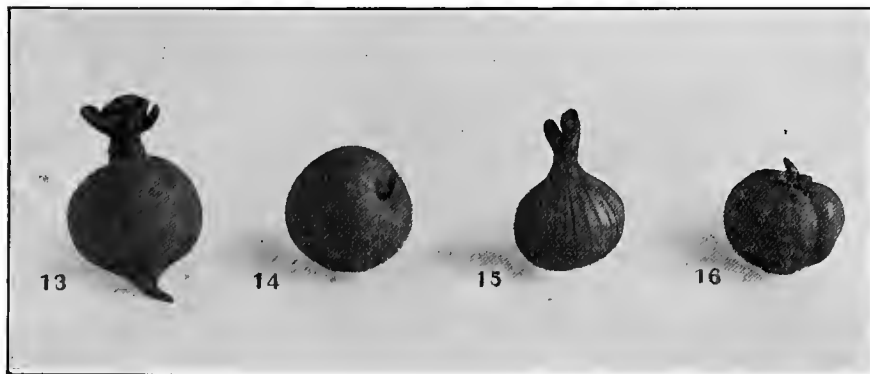
MODEL 12.—A Pear. (Yellow or Red).

1. Make a sphere, leaving a little material for the stalk.
2. Elongate slightly in one direction, flattening the other end a little.
3. Finish moulding with the finger-tips. Rub smooth.
4. Mould and add the stalk, which should fit into a hole.
5. Make the "scar," at the thick end, with the modelling tool.

Alternative or Supplementary Models.

9. A parsnip
10. A cucumber.

11. An artichoke.
12. A "ninepin."



Models 13 to 16.

MODEL 13.—**A Turnip.** (Yellow or grey ; top green).

1. Put to one side sufficient material to make the "neck" and leaf-stalks. Make the remainder into a sphere, and alter to correct shape.
2. Draw-out a portion at the bottom, and mould to make the part of the "root" showing.
3. Mould and add the "neck."
4. Add portion for leaf-stalks, and mould afterwards.
5. Add necessary markings with the modelling tool.

MODEL 14.—**An Apple.** (Green).

1. Make a sphere, leaving a little material for the stalk.
2. Flatten one "end" with the palm of the hand, then make a deep depression, first with the finger and afterwards with the modelling tool.
3. Draw out the other end a little, make a slight depression, and mark the "scar."
4. Smooth carefully with the fingers, adjusting where necessary, and add the stalk as in other models.

MODEL 15.—**An Onion** (Grey or yellow).

1. Make a sphere, flatten, and draw-out for the base of the leaves.
2. Model the base, where roots have been, with fingers and modelling tool.
3. Shape the top with the flat end of the modelling tool.
4. Mark the lines from leaves to root.

MODEL 16.—**A Tomato.** (Red ; Stalk, etc., green).

1. —Make a sphere, leaving material for stalk, etc., and flatten between the palms of the hands.
2. Make depressions with the modelling tool, afterwards smoothing with the finger-tips.
3. Model and fix stalk, etc.

Alternative or Supplementary Models.

13. Beetroot.
14. Brussels sprouts.
15. Hyacinth bulb.
16. " Fruit " of Horse Chestnut.



Models 17 to 20.

MODEL 17.—**A Padlock.** (Any colour).

1. Divide material into two portions, for the lock and the " staple."
2. Shape the lock, modelling as much as possible *on the board*. The curved edges should be shaped with the fingers, and then pressed on the board.
3. Make a roll with the smaller portion of plasticine, of uniform thickness. Bend to shape and fix to lock, fitting into holes made for the purpose.
4. Mark the keyhole with the modelling tool. If this be done by pressing the tool in, the front face will need flattening on the board again afterwards.

MODEL 18.—**A Horse-Shoe.** (Any colour).

1. Remove a little of the material, and with the remainder make a roll. Flatten this, and shape on the board into a *bar*.
2. Bend to required shape, turning each end up slightly.
3. Add the prominence at centre of curve.
4. Mark holes for nails.

MODEL 19.—**A Strawberry.** (Red ; stalk, etc., green).

1. From a sphere, work to the required shape with the fingers.
2. Make a depression in the top, and a hole for the stalk, etc.
3. Model stalk and remains of flower-calyx, and fix in position.
4. Adjust where necessary with the modelling tool.
5. Make small holes to represent seeds.

MODEL 20.—**A Walnut** (Yellow).

1. Remove a small portion of plasticine, and make a sphere of the remainder.
2. Work to an “ oval ” shape, drawing-out the ends very slightly.
3. Make a long, thin roll with the material put on one side, and place this where the shells unite. Work this into the remainder of the plasticine with the flat end of the modelling tool. Draw a line to represent the junction of the shells.
4. Finish-off with the modelling tool, making marks on the model as on the object.

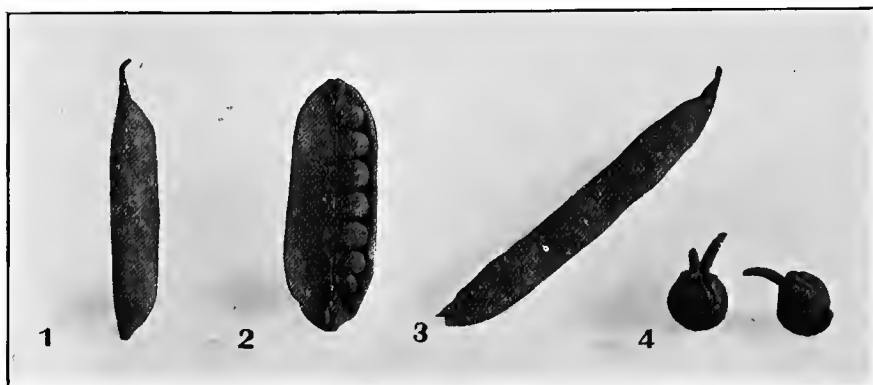
Alternative or Supplementary Models.

17. A key.
18. A horse-shoe magnet.
19. Raspberries.
20. A Brazil nut.

PLASTICINE WORK. Scheme II.

Introduction to Scheme.

See Introduction to Scheme I, page 116.



Models 1 to 4.

MODEL 1.—A Pea-pod (closed). (Green).

1. Draw-out the plasticine into a roll, and flatten between the palms of the hands.
2. Work with the finger-tips to make one *edge* thick and the other thin.
3. Shape the two ends with the tips of the fingers.
4. Add any necessary markings (*e.g.*, junction of the halves of the pod) with the modelling tool.

MODEL 2.—A Pea-pod (open). (Green).

1. Put a little material on one side for the peas, and divide the remainder into two equal portions.
2. Work each of the latter into rolls, flatten, and then make hollow with the finger-tips, adjusting to shape.
3. Join these together, and if the junction is not clearly defined, mark with the flat end of the modelling tool.
4. Mould peas, varying in size, with the finger and thumb, and place in position, pressing slightly to make them adhere and to get the flattened appearance if this be the condition of the peas in the "object."
5. Adjust the pod if it has been put out of shape.

MODEL 3.—A Kidney-Bean pod. (Green).

Proceed as in Model 1. Take care to represent the "bulges" where beans lie.

MODEL 4.—Crocus Bulbs. (Red and yellow or grey).

1. Make a sphere, then flatten one "end" and draw-out the other.
2. Adjust with the modelling tool to represent the skin of the bulb, and make a hole for the growing stem (two, if necessary).
3. Shape the stem (or stems), and fix in position.
4. Mark, where necessary, with the flat end of the tool.

Alternative or Supplementary Models.

1. A broad bean.
2. A broad bean (open to show seeds).
3. A "stick" of rhubarb.
4. Daffodil bulbs.

**Models 5 to 8.****MODEL 5.—A Mushroom.** (Yellow or grey).

1. Divide the material into two portions, for the top and the stalk.
2. For the top, first make a sphere, and then press with the thumbs to make a cup-like shape of the required size and thickness.
3. Make the necessary markings on the "hollow" of the cup, with the flat end of the modelling tool. Smooth the top with the fingers.
4. For the stalk, start with a sphere, roll, and adjust as in the model. Fix in position and bend if necessary.

MODEL 6.—A Mussel Shell. (Green).

1. Make a rough "solid" representation of the shell, smaller than the object.
2. Press-in one side, to make the shell hollow. Press firmly all over, to get uniform thickness. Then *thin* at the edges.
3. Adjust carefully, noting the object, and then add "growth" lines with the modelling tool.

MODEL 7.—**An Ink-Bottle.** (Any colour).

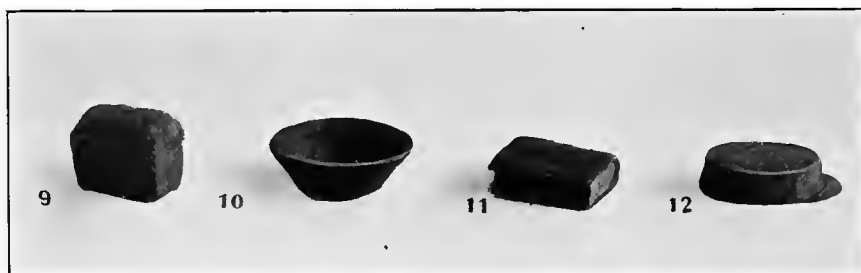
1. Remove a little material for the neck of the bottle. Shape the remainder as a sphere.
2. Flatten this sphere on the board, in six places, to form a cube (or square prism, according to the shape of the object).
3. Use the middle of the modelling tool to shape the pen-rests.
4. Shape and add the hollow neck. Add any other markings.

MODEL 8.—**A Door Knob.** (Yellow).

1. Make a sphere, and flatten one "end." [tips]
2. Draw-out the other in the form of a "neck," shaping with the finger.
3. Cut out a square hole. This will alter the shape of the neck, which will need re-adjusting.
4. Smooth carefully with the fingers.
5. Add necessary markings with the modelling tool.

Alternative or Supplementary Model.

- | | |
|--------------------|---------------------------|
| 5. Acorns. | 7. A circular ink-bottle. |
| 6. A cockle shell. | 8. A chair castor. |



Models 9 to 12.

MODEL 9.—**A Breadloaf.** (Yellow).

1. Make a sphere.
2. Flatten (as in Model 7) to make a rectangular prism.
3. Adjust, by pressing on the board, to show where the loaf-tin has been.
4. Work the top with the fingers.
5. Add any necessary markings with the modelling tool.

MODEL 10.—**A Bowl.** (Red).

1. Make a half-sphere.
2. Press-in the flat surface, working with the fingers outside and the thumbs inside.

3. To make the sides "flat," roll on the board.
4. Adjust the sides while the base is resting on the board ; this will make the bottom flat.
5. Turn-down all the way round the brim, if so in the object.

MODEL 11.—A Book. (A dark colour for the cover, and a light colour for the leaves—*e.g.*, red and grey, or green and yellow).

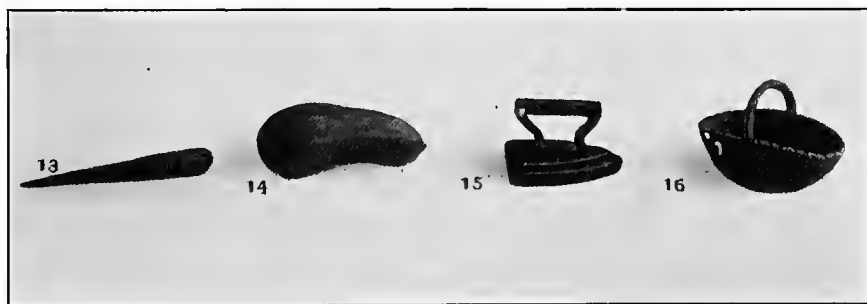
1. Make a rectangular solid for the "leaves" (See Model 7).
2. For the cover, flatten the material on the board, and cut to shape and size. Make a trial of the size, and, if too small, flatten a little more.
3. Place the cover in position, and mark the "leaves" with the flat end of the modelling tool. Add any other markings necessary.

MODEL 12.—A Postman's Hat. (Any colour).

1. Remove a little material for the "peak." Make a "half-oval" of the remainder.
2. Shape as in Model 10, working *on the board* to make the edges flat.
3. Model and add the peak.

Alternative or Supplementary Models.

- | | |
|-----------------------------|--------------------------------|
| 9. A hassock or footstool. | 11. A picture frame. |
| 10. A basin or mustard pot. | 12. A straw hat or a felt hat. |



Models 13 to 16.

MODEL 13.—A Paint Brush. (Red and yellow).

1. Work the red material into a *roll*. Then taper it by rolling on the board. Smooth, if necessary, with the fingers.
2. Mark the "binding material" at the thick end, with the flat end of the modelling tool.
3. Shape the yellow material into a cylinder for the hairs, and press into position.

4. Add markings, to represent the hairs, with the tool.

MODEL 14.—**A Vegetable Marrow.** (Green or yellow).

1. Model a sphere, and elongate it, making it a little thinner in the middle (according to the object).
2. Bend into shape.
3. Add markings with the tool. If there are flattened faces, mould by drawing the fingers or the flat end of the modelling tool from one end to the other. Make ridges by “pinching” as the fingers move slowly along, doing two “faces” at once.

MODEL 15.—**A Flat Iron.** (Any colour—dark is best).

1. Divide material into two portions, for the base and the handle.
2. Shape the base, first with the fingers, then by pressing on the board. Mark the ridges and grooves with the tool.
3. Shape the handle in three pieces—a cylinder and two flat ribbon-like pieces. Fix these three together, and then add to the base, fixing in position and adjusting with the tool where the fingers cannot reach.

MODEL 16.—**A Basket.** (Yellow).

1. Remove a portion for the handle. Shape the remainder into a half-oval, and then model as in No. 5.
2. Make a roll for the handle, bend, and fit into position, placing each end in a hole made for the purpose.
3. Add markings, as in the model, with the modelling tool.

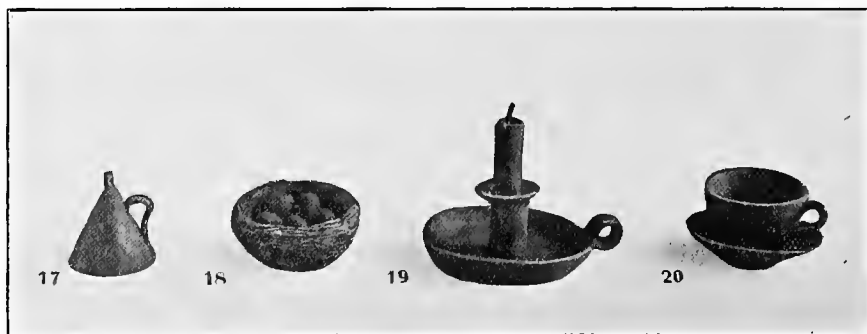
Alternative or Supplementary Models.

13. A gum brush.

15. A teapot.

14. A lemonade bottle.

16. A circular basket.



Models 17 to 20.

MODEL 17.—**An Oil-can.** (Grey).

1. Remove a portion for the handle, and shape the remainder into a sphere.
2. Model this sphere into a cone by (a) pressing on the board to get the flat base ; (b) rolling on the board (after rough adjustment with the fingers) to make the sides.
3. Draw-out and model the top.
4. Shape and add the handle.

MODEL 18.—**A Nest of Eggs.** (Green and yellow, or red and grey).

1. Shape the nest. (See Model 5).
2. Model the eggs. (See Model 6, *Scheme I.*)
3. Add markings to the nest by means of the modelling tool, or a pointed piece of wood.

MODEL 19.—**A Candle-stick and Candle.** (Yellow, or grey, and red).

(a) *Candle-stick*—Divide the material into four portions, for the base, upright cylinder, melted-wax “catcher,” and handle. Instructions for making all these have already been given in the various models.

(b) *Candle*—Shape as a cylinder, and add the wick, the latter to fit into a hole made in the former.

MODEL 20.—**A Cup and Saucer.** (Yellow or green).

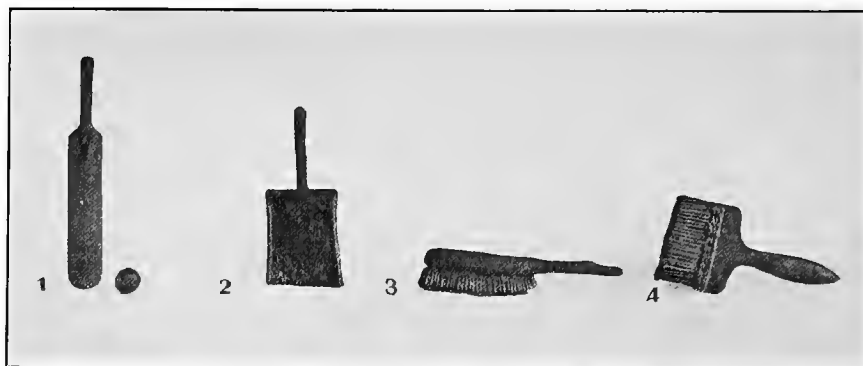
1. Divide the material into three portions for the cup, handle, and saucer.
 2. For the cup, construct a half-sphere and proceed as in Model 10. Construct a roll for the handle ; then shape and place in position.
 3. Construct the saucer from a half-sphere in a similar way.
- (To get the flat base for the cup and the saucer, model *on the board*, pressing down firmly. Make sure that the cup and the saucer are in proper proportion).

Alternative or Supplementary Models.

17. A pepper box.
18. A flower vase.
19. A lamp.
20. A plant-pot and saucer.

PLASTICINE WORK. Scheme III.

Introduction to Scheme (See Introduction to Scheme I., page 116).



Models 1 to 4.

MODEL 1.—A Cricket Bat and Ball. (Yellow for the bat ; red for the ball).

1. Separate enough material for the ball, and work the remainder from a sphere to a cylinder, about three-fourths as long as the model is to be.
2. Draw-out one end, and shape it for the handle.
3. Flatten the remainder with the palms of the hands ; then place on the board, flat side underneath, and shape the blade.
4. Mark the "splice" and the binding thread with the modelling tool, and then mould the ball. (See that the two models are in proper proportion).

MODEL 2.—A Fire Shovel. (Yellow for the handle ; red for the "shovel").

1. Shape the handle from a roll, flattening one end to fit on the shovel.
2. For the other part of the shovel, flatten the plasticine and shape as a rectangle. Cut a V-shape out of the two "top" corners, and turn up three edges as required.
3. Finish the shaping of this portion, and then add the handle.

MODEL 3.—A Hand-brush. (Yellow).

1. Divide the material into two portions, and, with the larger, shape the wooden portion, starting with a sphere and then shaping to a long cylinder. "Round" one end for the handle, and shape the remainder.
2. Get a *rough shape* of the "bristles" and press it firmly in contact with the other material. Mark with the sharp end of the modelling tool to represent hairs.

MODEL 4.—**A Whitewash Brush.** (Yellow).

1. Divide material for the handle, the hairs, and the rivetted binding strip.
2. Mould the handle, using the tool in shaping (if necessary).
3. Shape the hairs in the rough, as in Model 3, and add to the handle. Place the binding strip in position.
4. Mark with the tool, as in Model 3.

Alternative or Supplementary Models-

1. An Indian club.
2. A garden spade.
3. A sweeping brush.
4. A garden fork.



Models 5 to 8.

MODEL 5.—**A Hair Brush.** (Red for the wood ; yellow for the bristles).

1. For the wooden portion, shape the material as a sphere, then draw-out one "end" slightly. Flatten between the palms of the hand ; then place on the board, and finish shaping.

2. Shape the bristles as a "flat oval," and press firmly into position on the "wood."

3. Mark bristles at the sides with the modelling tool, and get a representation of *hair-points* by sticking a needle or a pointed match-stalk into the material on the flat surface.

MODEL 6.—**An Axe.** (Yellow for the shaft ; red for the "blade").

1. For the shaft, work the material into a roll, and then bend where necessary.

2. Draw-out one end, and shape so as to fit into the blade. Thicken the other end (by shortening), and shape like the object.

3. For the blade, start with a sphere, shape to an "oval," and then make a thinner "neck" in the middle. Flatten and place the material on the board. Get a rough representation of the shape, and then finish off with the fingers, working to get a hole (for the shaft) with the modelling tool.

MODEL 7.—A Garden Trowel. (Yellow for the wood ; red for the metal).

1. Shape the handle from a "roll," and make a hole for the metal portion to fit into.

2. Separate a little of the material remaining (to make a connecting "neck") and shape the curved metal portion *first in the flat*, afterwards bending.

3. Add the neck, and fix into the handle.

MODEL 8.—A Screw-driver. (Red for the handle ; yellow for the metal portion).

1. Shape the handle from a "roll," then flatten, where necessary, on the board. Mark a "slit" or groove for the other portion to be fitted into.

2. Shape the metal portion of the model in the rough with the fingers, and then work it on the board. To make both sides perfectly flat, keep turning it over as it is being shaped.

3. "Sharpen" the tip, and fix the "blade" into the handle.

Alternative or Supplementary Models.

5. A clothes brush.

7. A bricklayer's trowel.

6. A wooden mallet.

8. A chisel.



Models 9 to 12.

MODEL 9.—A Gentleman's Purse. (Red).

1. Divide the material into three portions for the pocket, the turnover, and the strap.

2. Shape the pocket by pressing a sphere on the board to make a flat side, afterwards pressing between the palms of the hands, and finishing by working (on the board) with the fingers.

3. Shape the turnover, and fix in position ; then add the strap, fixing firmly at back.

4. Mark stitches with a hair-pin, or a pointed piece of wood, and the sharp end of the modelling tool.

MODEL 10.—**A Lady's Purse.** (Red).

1. Remove a small piece of material, and shape the remainder as a rectangular block, working on the board.

2. Work the fold-marks at the sides and bottom with the tool.

3. *Lift up* the curved front with the sharp end of the tool.

4. Shape the " tab " and fix in position. Mark stitches as in Model 9.

MODEL 11.—**A Scallop Shell.** (Yellow).

1. Shape *in the flat*, and then mark the depressed hinge-portion by pressing with the modelling tool.

2. Mark the position of the radiating flutings and then shape with the tool.

3. Bend to get the hollow shape, holding very carefully between the fingers.

4. Place the model on the board, and finish-off with the tool where necessary. Any markings that have been spoilt while the model was being hollowed will need adjusting.

MODEL 12.—**A Bloater.** (Green).

1. Separate enough material for the fins and the eye, and shape the remainder into a rough representation of the model, tapering towards one end.

2. Shape more carefully with the fingers.

3. " Lift " the gill-covers with the tool, and mark the mouth.

4. Add the eye and the fins.

5. Finish-off carefully with the tool, to exactly imitate the object.

Alternative or Supplementary Models.

9. A pocket-book.

10. A lady's hand-bag.

11. An oyster shell.

12. A flat-fish (*e.g.*, plaice).



Models 13 to 16.

MODEL 13.—A Set of Dishes. (Yellow or green).

1. Divide the material into three portions, in proportion to the size of the dishes.

2. To shape each, make a sphere, shape to an "oval," flatten between the palms of the hands, finish flattening by pressure (on the board) with the fingers, and then turn-up the edges.

3. Finish shaping, and get a smooth surface by rubbing with the curve (flat end) of the tool and the finger-tips.

MODEL 14.—A Sauce-pan. (Red).

1. Divide the material into two portions, for the "pan," and the handle.

2. To make the former, work the material into a shallow cylinder. Then press with the thumb inside, working (and "*lifting*") with the fingers outside. Continue to work in this way to get uniform thickness and the correct shape.

3. Shape the handle as a long cylinder, make it taper slightly, thicken one end, and then "thin" the other end to fit on the pan. Fix in position.

MODEL 15.—A Milk Jug. (Yellow or green).

1. Separate a portion of material for the handle.

2. Shape the "vessel" as indicated in Model 14 (2). If the walls become too thin, add a little more material.

3. *Pull out* for the spout. Shape the handle as a roll, "thin" both ends, fix one end, bend into shape, and then fix the other end.

MODEL 16.—A Pair of Slippers. (Any colour).

1. Divide the material into two equal portions.

2. Shape each piece like a *thick* "slipper base" (sole and heel combined).

3. Press firmly with a finger of the right hand on the sole part, and work the material upwards over it with the fingers of the other hand. Then remove the imprisoned finger carefully.

4. Depress in a similar manner for the "waist" and the heel.

5. Finish-off with the finger and thumb to obtain uniform thickness and the correct shape.

Alternative or Supplementary Models.

- 13. A set of plates.
- 14. A frying-pan.
- 15. A cream-jug.
- 16. A pair of boots.



Models 17 to 20.

MODEL 17.—A Hammer. (Yellow for the shaft ; red for the head).

1. Shape the handle from a roll, thinning one end to fit into the head.
2. To make the head, model an "oval" and then, by pressure with a finger curved round the plasticine, make a "neck."
3. Draw-out one end, and finish shaping by pressing flat portions on the board, and by pressing with the flat end of the tool. Make a hole for the handle to fit into.
4. Fix the two portions together, and "smooth" the shaft by rubbing with the fingers.

MODEL 18.—**An Egg-cup.** (Green or yellow).

1. Make a cylinder, and shape a neck as in Model 17 (2).
2. *Press in* with the thumb, *lifting out* the material with the fingers outside, to make the “cup.” Keep on working with the thumb inside and the fingers outside to get uniform thickness and correct size and shape.
3. Repeat the procedure indicated in (2), to shape the hollow base. Flatten the bottom by pressure on the board.
4. Add lines or other markings with the modelling tool.

MODEL 19.—**A Paint Brush.** (Yellow).

1. Divide material into three portions.
2. Shape to get a rough representation of the hairs, the middle “cylinder,” and the tapering handle.
3. Fix the three portions together, and then shape more carefully.
4. Mark hairs and binding thread with the tool.

MODEL 20.—**A Pair of Pincers.** (Any colour).

1. Divide the material into two equal portions.
2. Shape each part first in the flat, afterwards bending.
3. “*Thin*” where parts come into contact with each other, and then fix together, adding a piece to represent the “axle-rivet.”

Alternative or Supplementary Models.

17. A pick-axe.
18. A salt cellar.
19. A hand-bell.
20. A pair of scissors.

PLASTICINE WORK. Scheme IV.

Introduction to Scheme.

This is a scheme of modelling to measurement, to prepare the pupils for Light Woodwork later.

Tools.—Each child should have a modelling-board, a small “rolling-pin,” a flat ruler for measuring, and a knife. Round wooden rulers will serve admirably as rolling-pins, or they may be made by older boys during the time devoted to Woodwork. The best knife is a pocket-knife or a small table-knife ; or the work may be done (but not quite so accurately) with box-wood modelling knives.

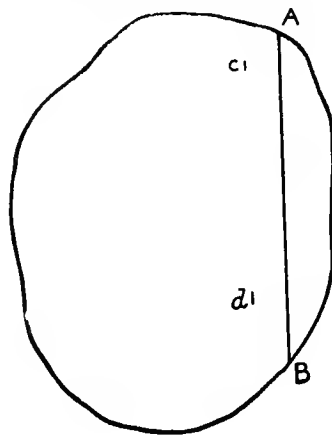
Material.—Plasticine.

Procedure in Constructing Models :—

(1) *Working the material* to make it thoroughly plastic.

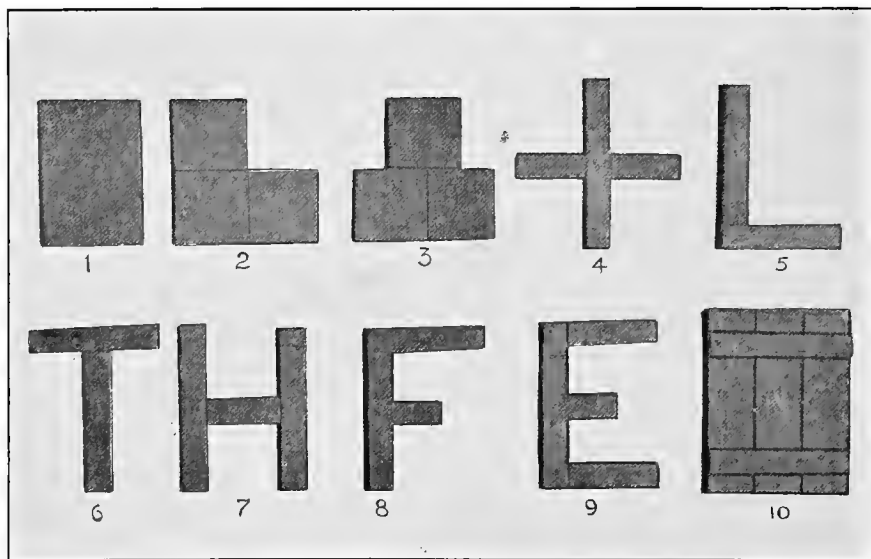
(2) *Rolling into a flat “Cake.”*—The material should be shaped as a sphere, afterwards flattening between the palms of the hands. It should then be placed in the middle of the board ready for rolling. In performing this operation, both hands should be used, just as in rolling dough. After each “roll,” the material should be peeled from the board, *turned over*, and *turned round* through an angle of 90° , so that every “roll” after the first will be at right angles to the previous one. Peeling from the board, and turning over after each roll, will prevent the material from sticking to the board. Should the modelling material be new, and consequently soft, a sheet of paper may be placed between it and the board. Turning through an angle of 90° after each roll, will ensure uniform thickness. The rolling, as indicated above, should be continued until the material is about $\frac{1}{4}$ ” thick.

(3) *Cutting the “strips.”*—The width of these should be indicated in the blackboard diagram. The first “cut” should be made to get a straight edge to work from. The diagram shows the result (AB being the cut referred to).



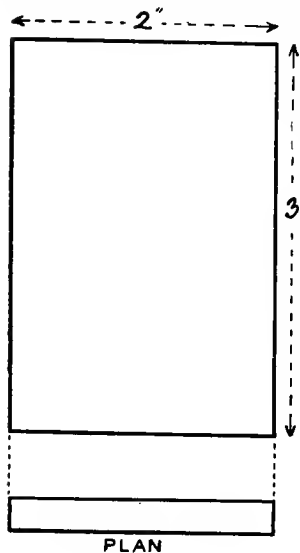
The width of the strip required should then be marked in two places, measuring to the left of AB (see *c* and *d* in the diagram). The ruler should then be held firmly on the material, so that *c* and *d* are in exact contact with the right-hand edge of the ruler. A single cut should then be made, right through to the board, passing through *c* and *d*. The strip thus severed from the "stock" of material should be lifted from the board by taking hold of one end, and "peeling" off along the whole length. (After a little practice, the children will find no difficulty in performing this task.) The strip should be cut down to the required length, being then put to one side where it will not be damaged. All other strips required should be prepared in a similar way. (Where strips are not required, as in Models 1, 15, etc., the diagram should be marked on the "cake" of material, after which the outside pieces should be cut away).

(4) *Building the Model.*—When all strips have been prepared, the stock of material remaining should be rolled into a ball and put on one side, so as to leave the board empty. The pieces should then be placed together, on the board, to form the model, pressing into position firmly, but not hard enough to damage the shape.

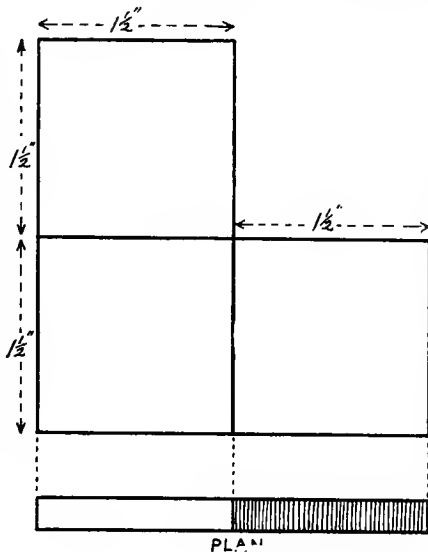


Models 1 to 10.

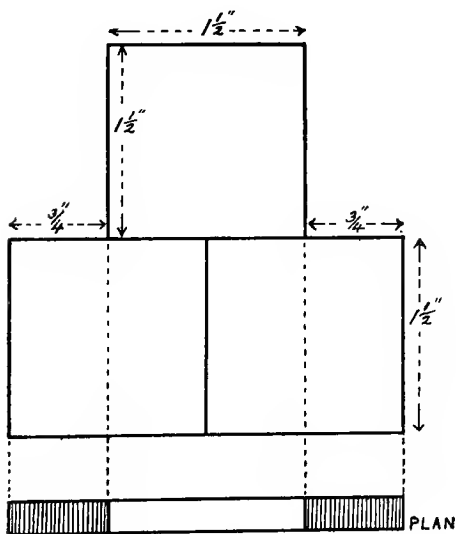
Model 1. A Rectangle.



Model 2. 3 Squares.



Three separate squares ($1\frac{1}{2}$ " side) to be cut out and placed together. An alternative model might be arranged, to construct a square of 3" side, cutting away a quarter of it so as to leave the same model.



Model 3. One Square standing on Two Squares.

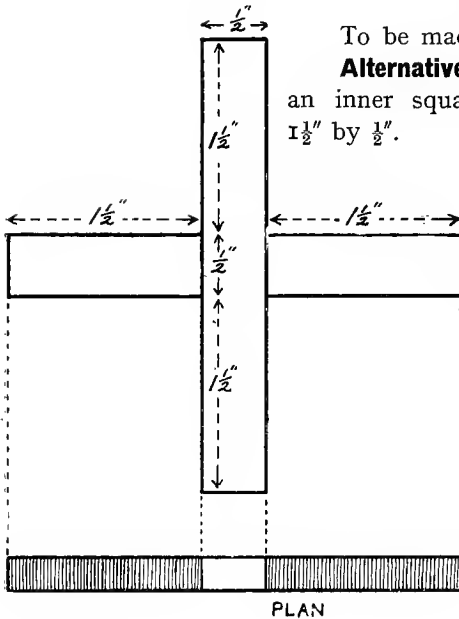
Three squares ($1\frac{1}{2}$ " side) to be arranged as shown.

Alternative Model.—Construct a 3" square, and then cut away two rectangles, each $1\frac{1}{2}$ " by $\frac{3}{4}$ ", so as to leave the same model.

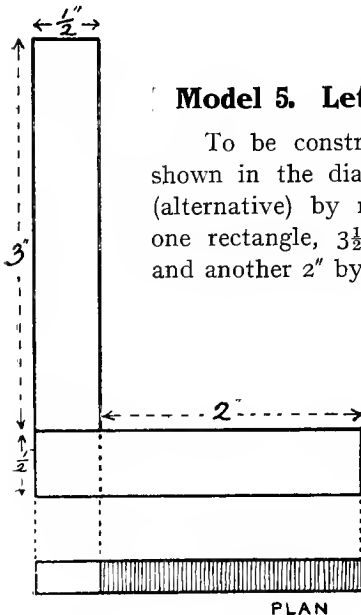
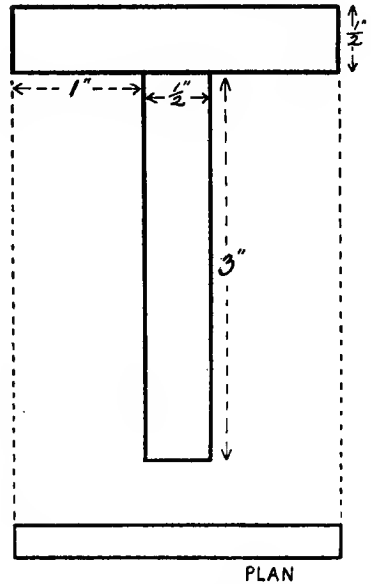
Model 4. A Cross.

To be made of three rectangles as shown.

Alternative Model.—Construct the same figure with an inner square ($\frac{1}{2}$ " side), and four rectangles, each $1\frac{1}{2}$ " by $\frac{1}{2}$ ".

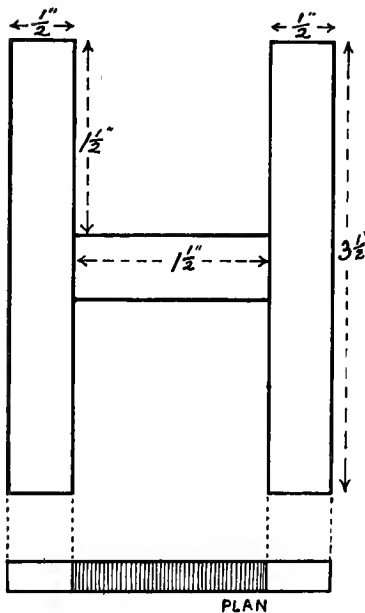
**Model 5. Letter L.**

To be constructed as shown in the diagram, or (alternative) by means of one rectangle, $3\frac{1}{2}$ " by $\frac{1}{2}$ ", and another 2" by $\frac{1}{2}$ ".

**Model 6. Letter T.**

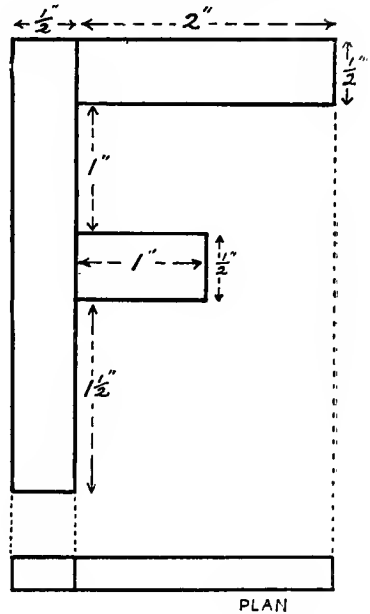
As an alternative, this may be constructed with a rectangle, $3\frac{1}{2}$ " by $\frac{1}{2}$ ", and two rectangles, 1" by $\frac{1}{2}$ ".

Model 7. Letter H.

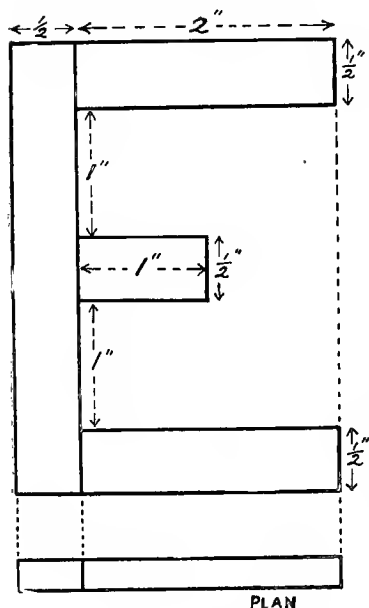


Construct the three strips necessary, then mark on the uprights the position of the cross-piece, and hence complete the model.

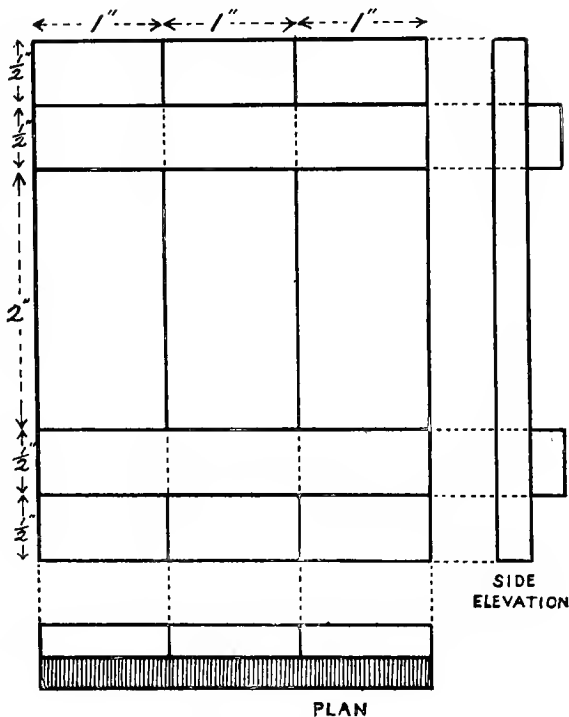
Model 8. Letter F.



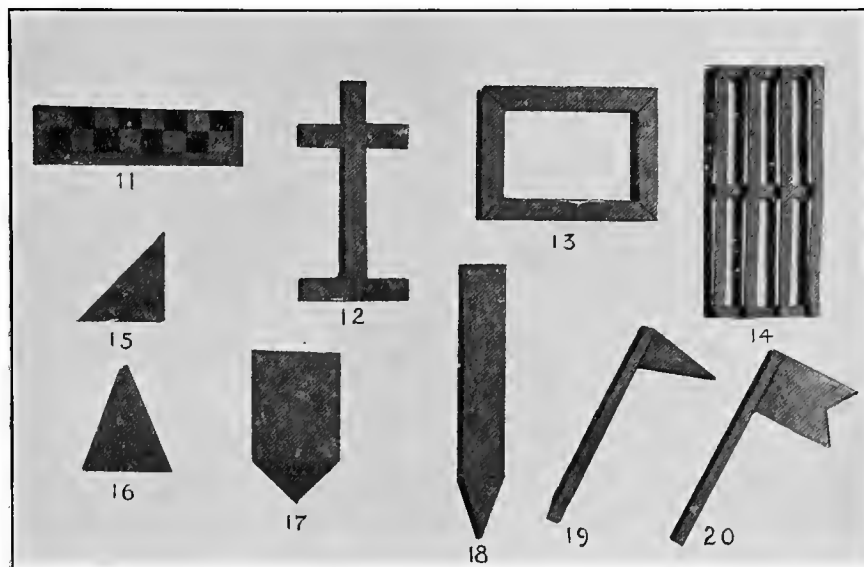
Place the upright in position, fix the top horizontal piece, and then mark the place for the short cross-piece before putting it in position.

Model 9. Letter E.

Construct as for Model 8, then add the lower horizontal strip.

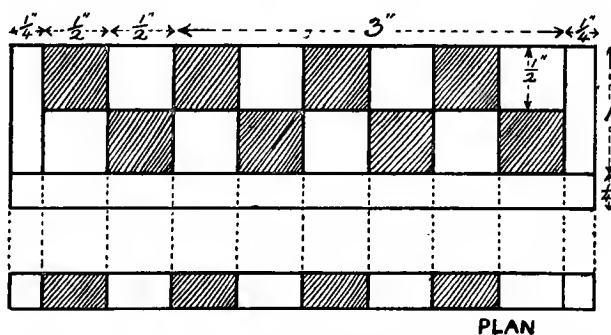
Model 10. A Door.

Place the "boards" in position, and then add the cross-bars, after marking their place.



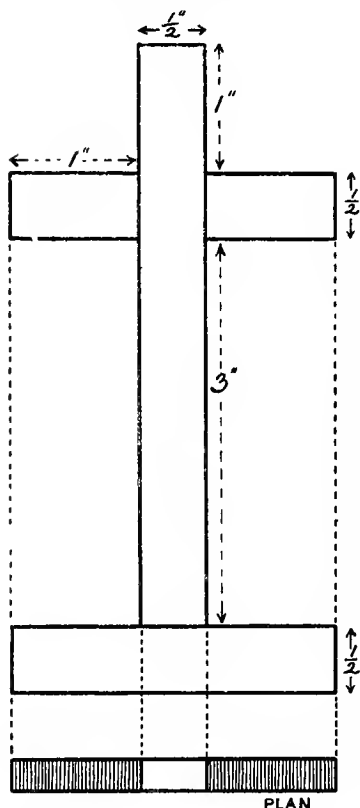
Models 11 to 20.

Model II. A Tiled Hearth.



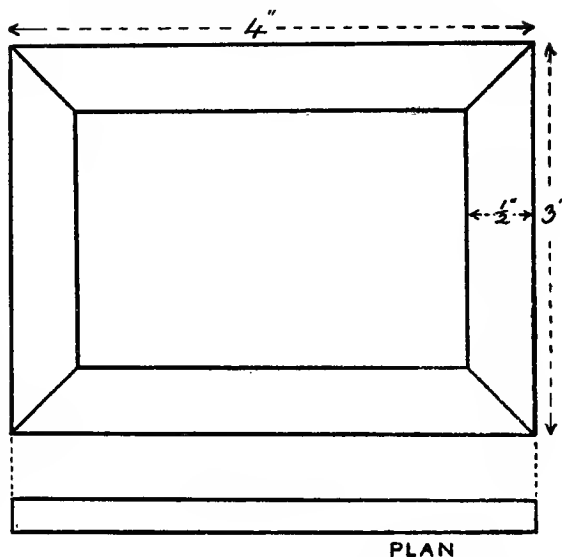
Place the outside frame-work in position, and then add the tiles. The shading-lines in the diagram indicate plasticine of a darker colour for one-half of the tiles.

Model I2.
A Cross with base.

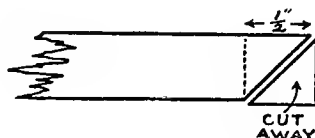


Place the upright in position, add the cross-pieces, and then complete with the base.

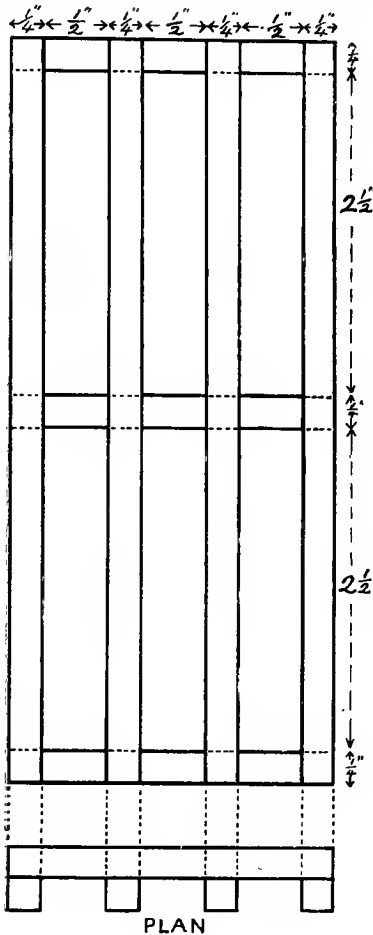
Model I3. A Picture Frame.



Construct rectangles 4" by $\frac{1}{2}$ " for the long sides, and rectangles 3" by $\frac{1}{2}$ " for the short sides. To get the mitred corners, deal with both ends of each piece as follows :—

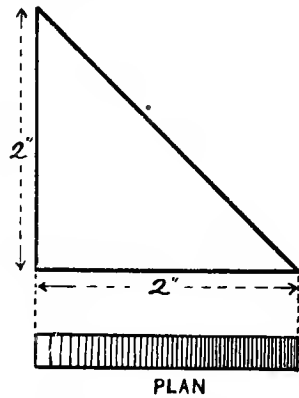


Model 14. A Bath-room Mat.



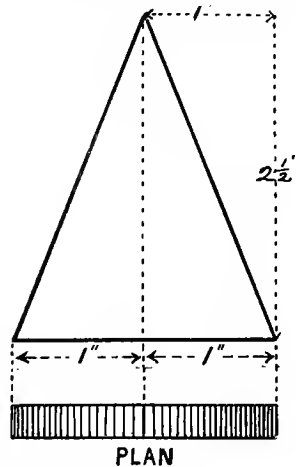
Mark carefully where the strips and bars are to be placed in contact with each other. Fix together the four outer strips first, to form a rectangle. Then add remaining pieces.

**Model 15.
A Right-angled Triangle.**

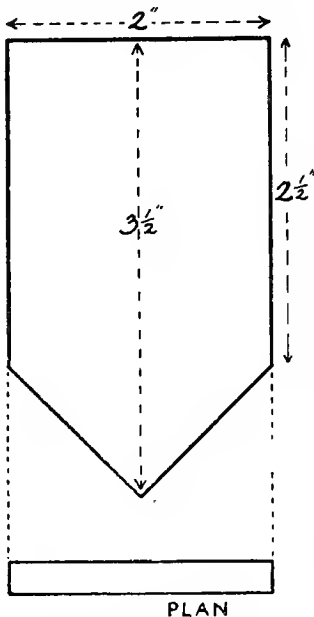


To be cut from a square of 2" side.

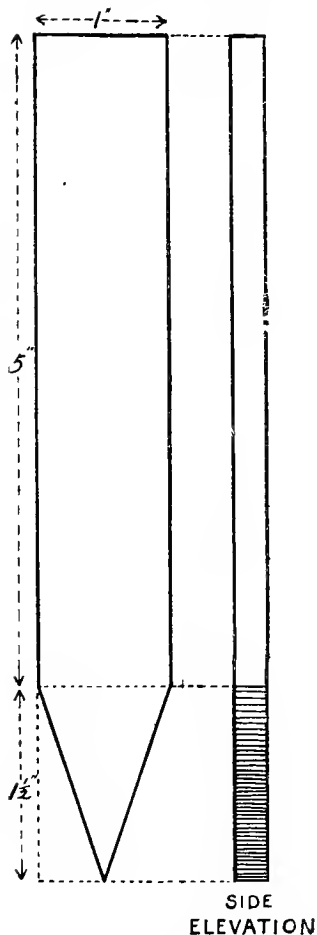
**Model 16.
An Isosceles Triangle.**



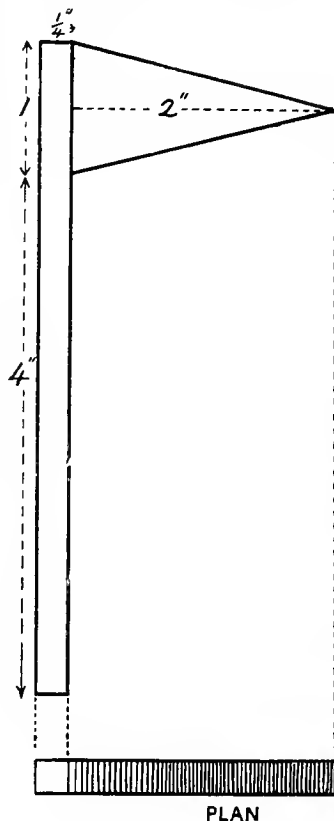
To be cut from a rectangle $2\frac{1}{2}$ " by 2".

Model 17. A Banner.

To be cut from a rectangle $3\frac{1}{2}$ " by 2"

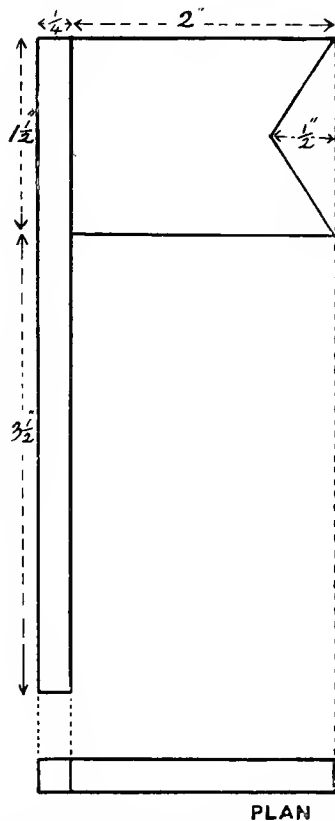
Model 18. A Plant Label.

To be cut from a rectangle $6\frac{1}{2}$ " by 1"

Model 19. A Flag.

First prepare the "rod," then add the "flag" (constructing as indicated in Model 16).

Model 20. A Flag.



PLAN

Prepare the "rod," then add the "flag" (constructed from a rectangle 2" by $1\frac{1}{2}$ " by $\frac{1}{2}$ ").

NATURE WORK IN PAPER. Scheme I.

Introduction to Scheme.

This is a scheme of work in “Free-cutting”, and can be made of great educational value. Amongst other advantages, the following may be claimed for it :—

(1) The cost of tools and material is slight. In many cases paper that otherwise would be wasted may be used.

(2) The various operations necessary for constructing a model bring into play all the muscles of the hand. The eye, too, receives good training in dealing with form, proportion, and colour.

(3) The educational process is one of analysis (examination of object), and synthesis (building-up the “model”).

(4) The interest of the children can be readily gained and kept—partly because such beautiful results may be obtained.

(5) Much good may be done by associating the practical work with Observation and Nature Lessons. The Models given in the scheme are *suggestive* only ; they are not meant to be rigidly adhered to, so that a teacher may adapt the practical work to suit his schemes in what we may call “formal learning.”

(6) In addition to models such as those given in the schemes, the children could make *plans* (classroom, schoolroom, garden beds, etc.), *maps* (lakes, portions of coastline, sections through mountain systems, etc.), and common objects dealt with in other lessons.

Tools.—Scissors, gum, and pencils.

Material.—Coloured paper, sold in squares. (See Apparatus List). White, brown, and green paper for backgrounds.

For backgrounds or mounts, use sheets of white drawing paper and coloured exercise-book covers.

Procedure in dealing with objects.

The general order of a lesson should be :—

(1) Examination of the object (which should be in view during the lesson), to determine (a) its proportions ; (b) its component parts ; (c) the colours necessary ; (d) any special method of cutting.

(2) Drawing the object (this could be done in a drawing lesson). This draws attention to details that would otherwise perhaps be missed.

(3) Drawing the “ parts ” on paper of the correct colour.

(4) Cutting-out. *Note* that this work demands a special style of cutting. The coloured paper must be held (horizontal) between the thumb and fore-finger of the left hand, so that it may be turned, as required, to allow of cutting along the lines drawn. The scissors should be kept pointing towards the front ; if the paper is moved correctly, there will be no necessity to change the position of the scissors. As long a “ cut ” as possible should be taken, working from the central rivet of the scissors to the extreme point.

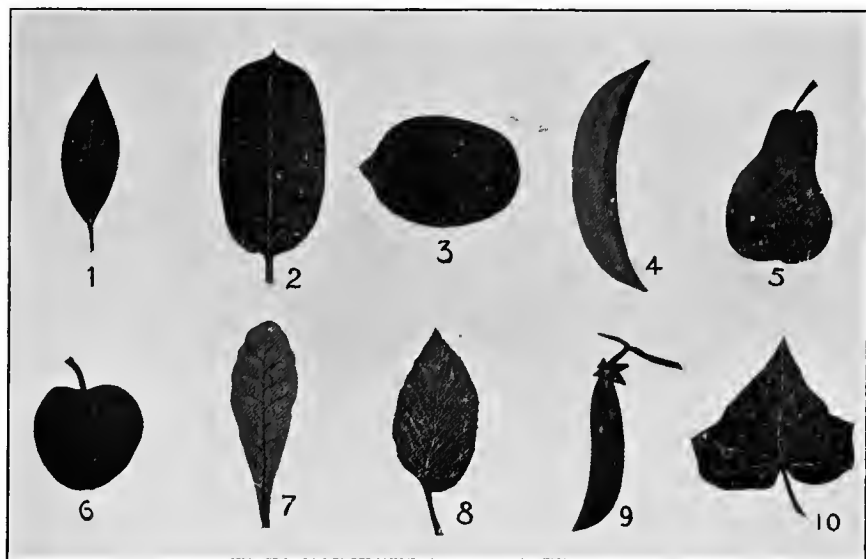
(5) Gumming the pieces on the mount, to build up the Model.

(6) Adding any necessary markings.

Note.—When paper of the right colour is not available, it may be prepared in either of the following ways :—

(a) By a water-colour “ wash ” on white drawing paper.

(b) By crayon, which should be well rubbed into the “ grain ” of drawing paper by means of a small wad of blotting paper.



Models 1 to 10.

MODEL I.—Sweet-Bay Leaf.

Cut out in green. Make markings by “ scratching off ” the colour with a pen. Gum on a white background.

MODEL 2.—**Laurel Leaf.** Procedure as for Model 1.

MODEL 3.—**A Lemon.** Cut out in yellow and gum on a white back-ground.

MODEL 4.—**A Banana.**

Cut out in yellow, and gum on a white mount. Add markings and shading with pencil.

MODEL 5.—**A Pear.**

Cut out in green or brown (according to the colour of the object). Gum on a white background and add a stalk of the right colour.

MODEL 6.—**An Apple.** Procedure as for Model 5.

MODEL 7.—**A Primrose Leaf.**

Cut out in light green and place on a white background. Add markings with pen and ink or pencil.

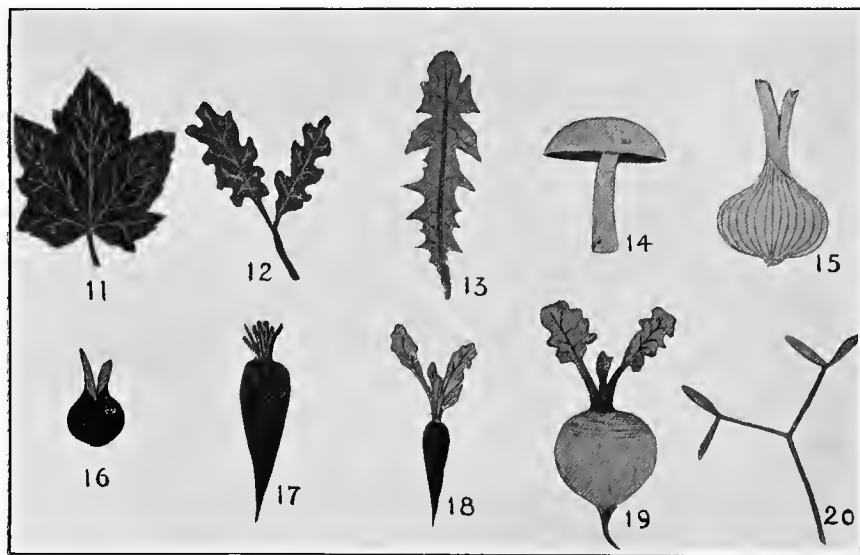
MODEL 8.—**An Elm Leaf.**

Cut out in dark green, using a white background. Scratch markings as in Model 1.

MODEL 9.—**A Pea Pod and Stalk.**

Cut out in green (in parts), and gum on a white background.

MODEL 10.—**An Ivy Leaf.** Procedure as for Model 8.



Models 11 to 20.

MODEL 11.—A Sycamore Leaf.

Procedure as for Model 10.

MODEL 12.—Oak Leaves.

Cut out leaves and stalk separately in dark green, and gum on a white background. Add markings with ink or by scratching.

MODEL 13.—A Dandelion Leaf.

Cut out in light green, using a white mount. Add markings in ink.

MODEL 14.—A Mushroom.

Cut out the top and the stalk in white, and the elliptical portion in brown. Gum the top on a dark background, then add the ellipse, and complete with the stalk. Shade the white portions lightly with a lead pencil.

MODEL 15.—An Onion.

Cut out the bulb in white and the stalks (parts of leaves) in green, and stick on a brown mount. Add markings in pencil or ink.

MODEL 16.—A Crocus Bulb.

Cut out the bulb in brown, and shoots in white. Gum on a green mount, and shade lightly with pencil.

MODEL 17.—A Carrot.

Cut out in red (nearest shade), and leaf-stalks in green, using a white mount. Add markings in ink.

MODEL 18.—A Radish.

Procedure as for Model 17.

MODEL 19.—A Turnip.

Use white for the root, and green for the leaves. Gum in position on a brown mount. Shade the white portion, and add other markings in pencil. Add leaf-veins, etc., in ink.

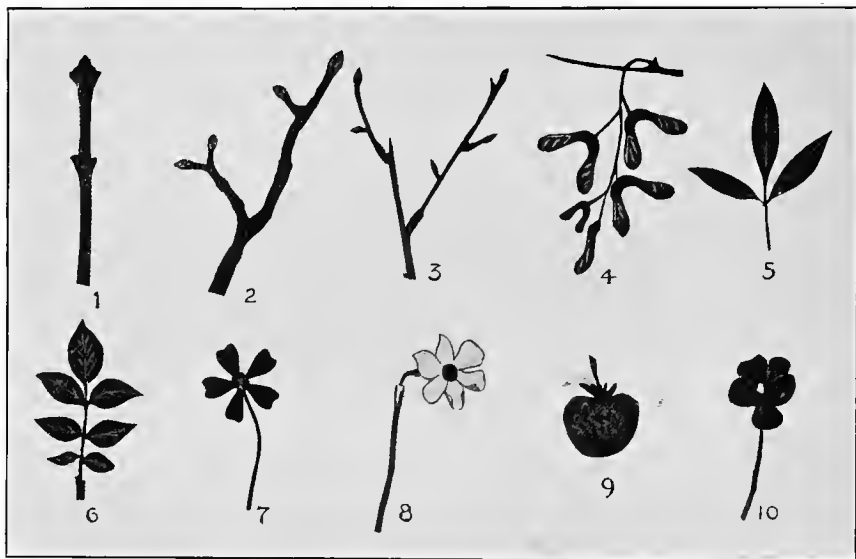
MODEL 20.—Mistletoe.

Cut out in pale green, and gum on a brown mount. Shade gently all over the green with pencil. (It may be cut out in white, and coloured with crayon).

NATURE WORK IN PAPER. Scheme II.

Introduction to Scheme.

See Introduction to Scheme I., page 148. A white background or mount should be used, except where otherwise stated.



Models 1 to 10.

MODEL 1.—Buds of Ash (February).

Cut out the stalk in light brown ("adapting" the colour with crayon if necessary), and add the bud-scales in black.

MODEL 2.—Spray of Sycamore Buds (February).

Cut out the stalk in dark-brown, adding buds in green. Alter the colour with crayon if necessary. Add markings with pen and ink.

MODEL 3.—Spray of Laburnum Buds (February). Procedure as for Model 2.

MODEL 4.—Winged Fruits of Sycamore (ripe).

There are three separate things to prepare:—piece of branch (dark brown), fruit-stems (green), and fruits (light brown and dark brown). Gum in position and add markings.

MODEL 5.—Laburnum Leaves.

Cut out leaves (separately) in dark green, fix in position, and add the stalk. Then make necessary markings.

MODEL 6.—Rose-leaf Spray. Procedure as for Model 5.**MODEL 7.—Common Mallow.**

Cut out parts of flower (separately) in mauve, and fix in position, afterwards adding the green stalk. Mark the lines (honey-guides) on the flower. (See note on colour in Introduction to Scheme I., page 149).

MODEL 8.—Narcissus.

Cut out the white parts of flower, and fix in position (on a brown mount around a *red* ellipse (or circle) as centre. Over this red centre gum a yellow ellipse (or circle) slightly smaller; this will leave the red "ring" in view. Add the stalk in green, and *shade* where necessary.

MODEL 9.—Strawberry.

Cut out the fruit in a suitable red, gum on the mount, and add the green parts. Mark the seeds.

MODEL 10.—Pansy.

Cut out the petals and stalk separately, and fix in position. (See Note on colour at end of Introduction to Scheme I., page 149).

**Models 11 to 20.**

MODEL 11.—Spray of “Hips”

Leaves and stalk should be arranged in dark green (or brown), and the “hips” in bright red. Fix stalks first and then add the remaining parts.

MODEL 12.—Sunflower.

Fix the centre (brown), and add the petals (yellow) separately.

MODEL 13.—Wild Rose Spray.

Procedure as for Model 11. Use light pink for the petals. Add markings to the leaves and the centre of the flower.

MODEL 14.—“Haws.”

Procedure as for Model 11.

MODEL 15.—A Growing Daffodil Bulb (January).

Leaves, stem, bulb, and roots should be cut out separately, *preparing* the correct colour if necessary. In fixing in position, build up from the bulb. (The roots may be represented by pencil lines).

MODEL 16.—A Crocus (February).

Build up in parts as follows :—(1) flower, (2) leaves, (3) sheath, (4) bulb.

MODEL 17.—A Snowdrop.

Procedure as for Model 15.

MODEL 18.—Spray of Bay Leaves.

Cut out in dark green and build up from the stem. Leaf-markings should be “scratched” on.

MODEL 19.—Leaf of Horse-chestnut.

Cut out parts separately in light green. Fix the central portion first, adding “outwards.” Leaf-markings may be represented in ink.

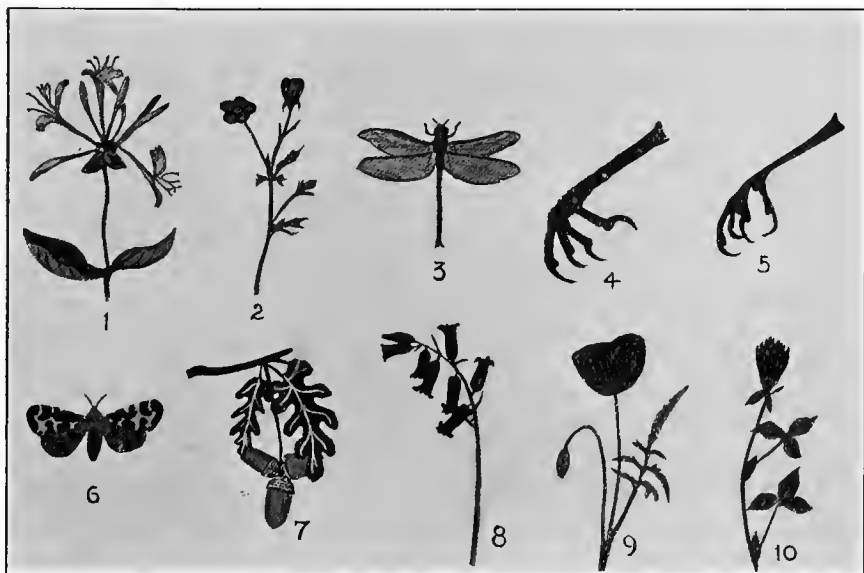
MODEL 20.—Ash Spray.

Procedure as for Model 18, using light green, and adding markings in ink.

NATURE WORK IN PAPER. Scheme III.

Introduction to Scheme.

See introduction to Scheme I, page 148.



Models 1 to 10.

MODEL 1.—**Honeysuckle.**

Arrange the stalk first, then add the flower, and lastly fix the leaves. To get the true colour for the flower, mark yellow paper with red crayon. When all the parts are in position, add markings in ink.

MODEL 2.—**Buttercups.**

Procedure as for Model 1.

MODEL 3.—**A Dragon-Fly.**

First cut out and arrange the body, then add the wings separately. White paper will suffice for the latter. Then shade the body with pencil or ink, and mark the net-veins on the wings in ink. Legs and antennæ should be added in ink.

MODEL 4.—A Magpie's Foot.

Fix the "leg" portion with the longest claw first, then add the other claws. Black paper should be used.

MODEL 5.—A Sparrow Hawk's Foot.

Procedure as for Model 4, working in light brown paper, with black for the claws. Add any necessary markings in ink.

MODEL 6.—A Tiger Moth.

Procedure as for Model 3. Wing-markings should be added *in paper* of the correct colour.

MODEL 7.—Spray of Oak with Acorns.

Arrange the portion of stem first, then the leaves, and lastly the acorns. The cup-portion of the acorns should be fixed in position before the acorns are added.

MODEL 8.—A Wild Hyacinth.

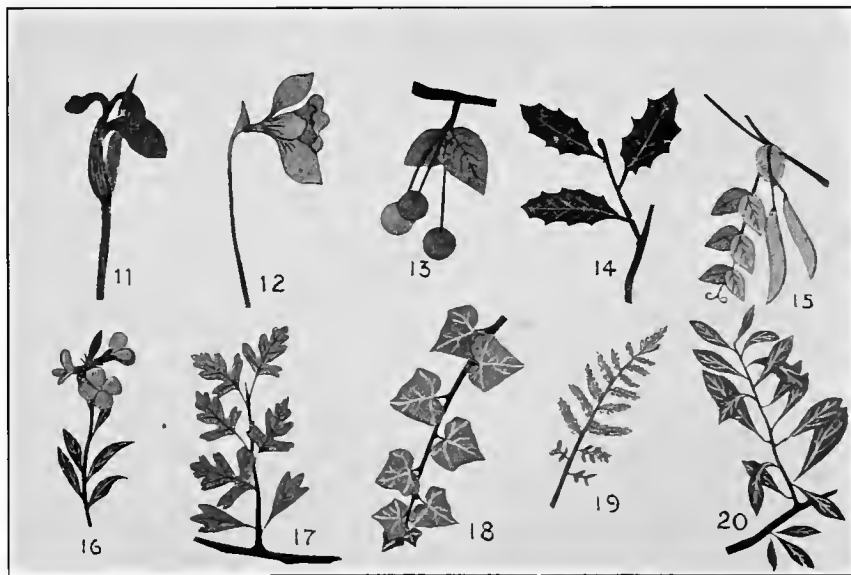
Procedure as for Model 1.

MODEL 9.—A Field Poppy.

Procedure as for Model 1.

MODEL 10.—Red Clover.

Procedure as for Model 1.



Models 11 to 20.

MODEL 11.—A Yellow Water Iris.

Build up as for Model 1, adding markings in ink.

MODEL 12.—A Daffodil.

The order of arrangement should be (1) stalk, (2) sheath, (3) cup portion of flower, (4) remainder of flower. Then add any necessary markings in ink.

MODEL 13.—Cherries.

Fix the portion of stem first, then the fruit stalks, then the fruit, and lastly the leaves, finishing off with markings in ink.

MODEL 14.—A Spray of Holly.

Build out from the stem, "scratching" leaf-veins to make them light-coloured. (The leaf-veins may be marked in white paint).

MODEL 15.—Culinary Peas and Leaves.

Procedure as for Model 13.

MODEL 16.—A Wallflower.

Procedure as for Model 1, but arranging partially-hidden leaves, etc., before those in the foreground.

MODEL 17.—A Spray of Hawthorn Leaves.

First arrange the stem, then the leaves, and finally add any necessary markings (leaf-veins) in ink. The green used should be light.

MODEL 18.—A Spray of Ivy.

Procedure as for Model 17, but using dark green, and "scratching" the leaf-veins so that they appear light-coloured. (See Model 14).

MODEL 19.—A Common Male Fern.

Build out from the stem as indicated in Model 17.

MODEL 20.—A Spray of Blackthorn.

Procedure as for Model 18.

DESIGNING IN PAPER. Scheme I.

Introduction to Scheme.

Tools.—Scissors, pencils, and rulers (graduated for measurement).

Material.—Coloured adhesive paper and white drawing paper.

Procedure in dealing with lessons.—The general order of treatment should be :—

(1) Drawing the diagram on white paper, which will thus form the background.

(2) Drawing and cutting-out the coloured pieces. (Where this is too lengthy a proceeding, the shapes may be marked by pricking through the diagram [see (1)], placing coloured paper underneath).

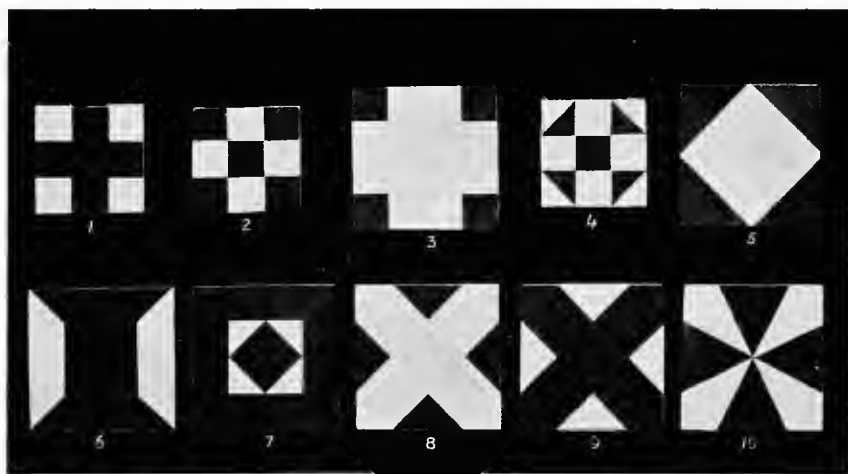
(3) Sticking the coloured pieces in position on the white paper.

[Note the possibility of producing more artistic designs by using two or more colours in the same "model."]

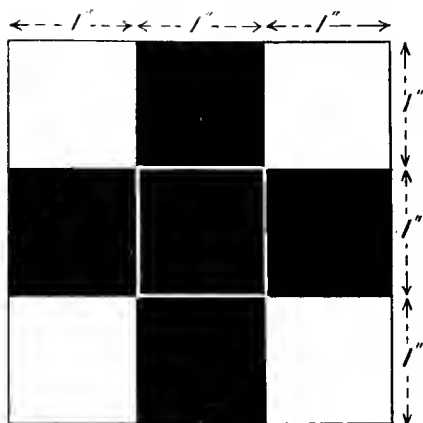
Original Work.—Schemes of this nature provide ample opportunity for children to display their ability to *create* designs, and this should be fostered in every way. As a preliminary step, the children should be allowed to experiment in design-making with the pieces left over after a class-design has been constructed.

Interpretation of diagrams.—The diagrams show all the construction lines necessary, the dark portions indicating where coloured paper is to be placed.

White dotted lines appearing on these dark portions indicate *construction lines* to be drawn on the background.

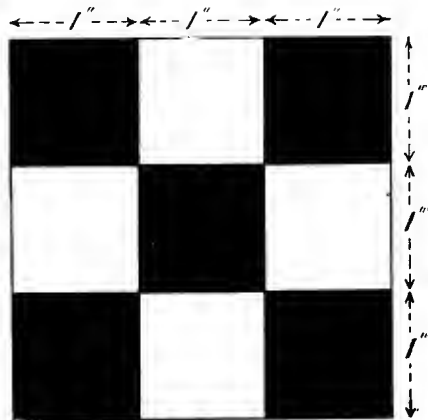


Designs 1 to 10.



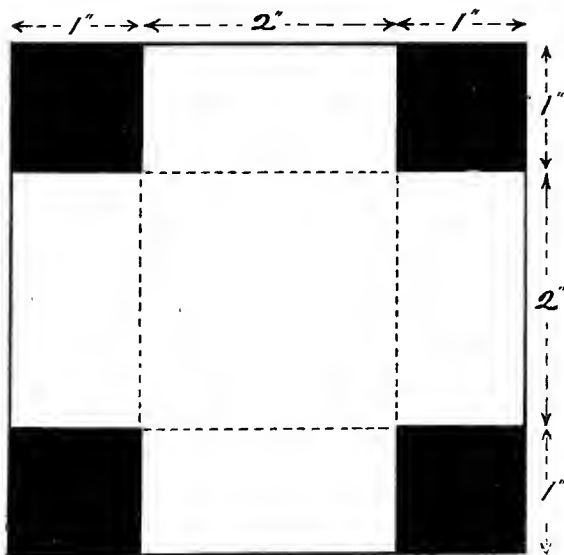
DESIGN 1.

On a background 3" square.
Five 1" squares to be gummed on.



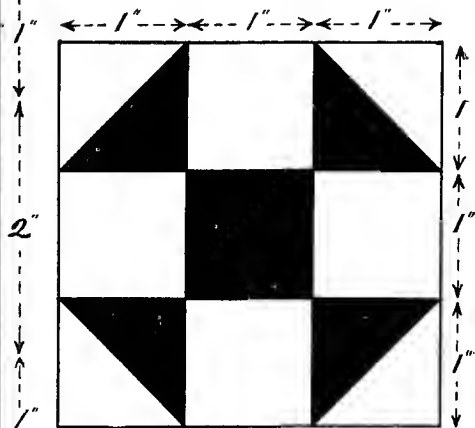
DESIGN 2.

On a background 3" square.



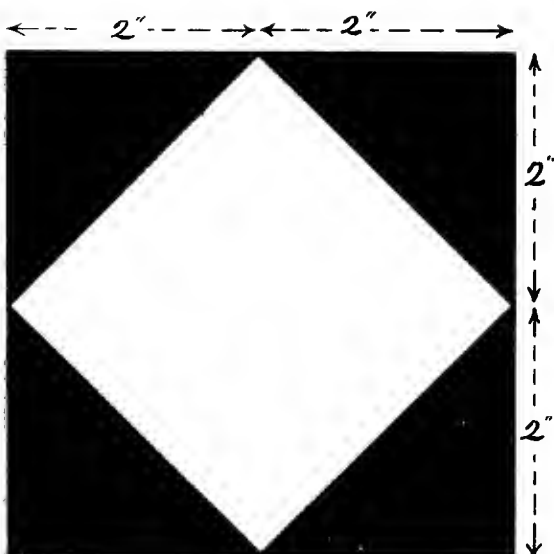
DESIGN 3.

On a background 4" square.



DESIGN 4.

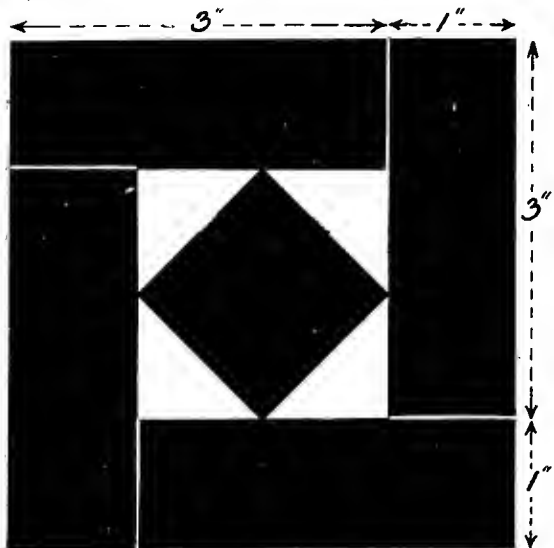
On a background 3" square.
Prepare the corner triangles from
1" squares.



DESIGN 5.

On a background 4" square.

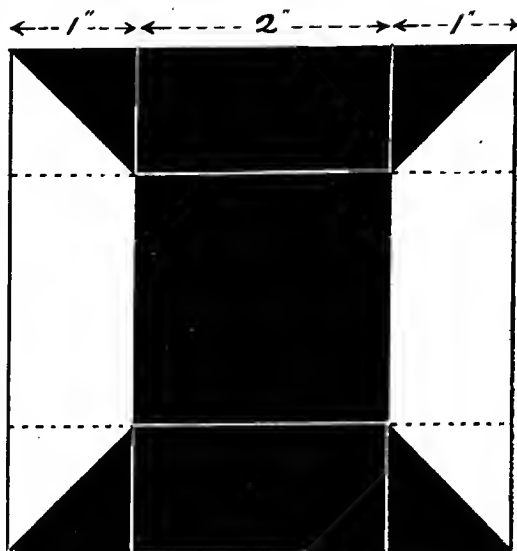
Prepare the corner triangles from 2" squares.



DESIGN 7.

On a background 4" square.

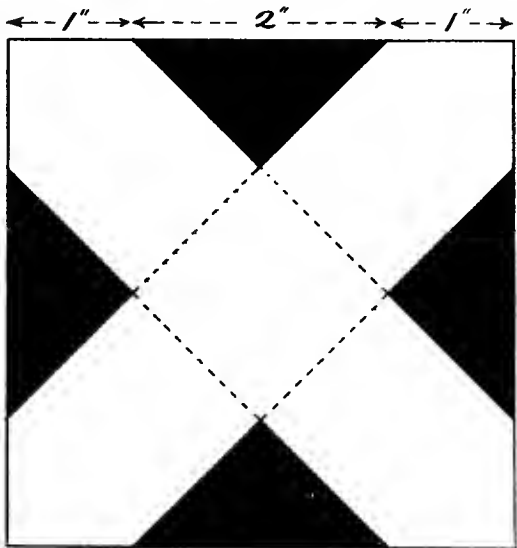
Five pieces to be gummed on.



DESIGN 6.

On a background 4" square.

Seven pieces to be gummed on.



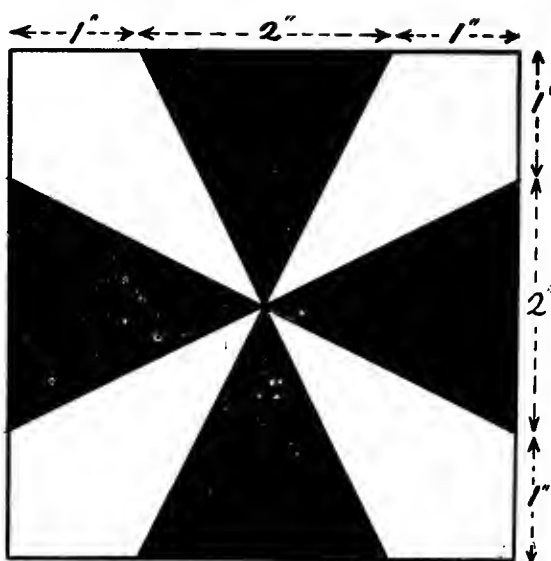
DESIGN 8.

On a background 4" square.



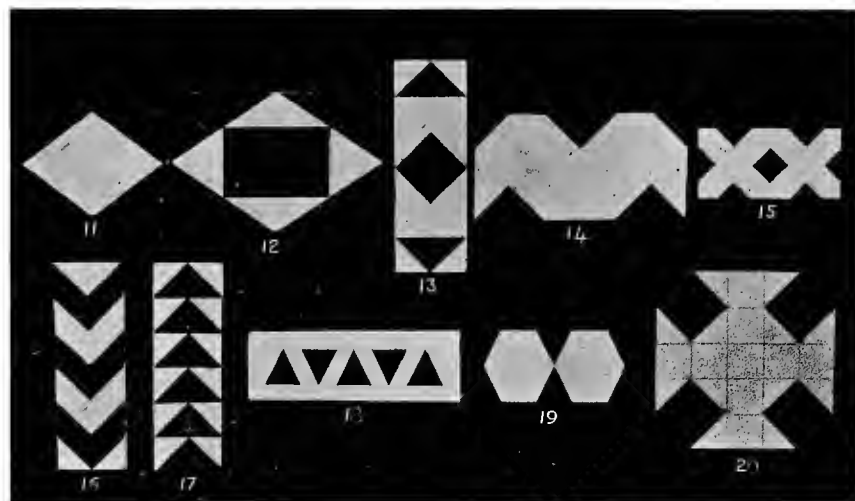
DESIGN 9.

On a background 4" square.
Five pieces to be gummed on.

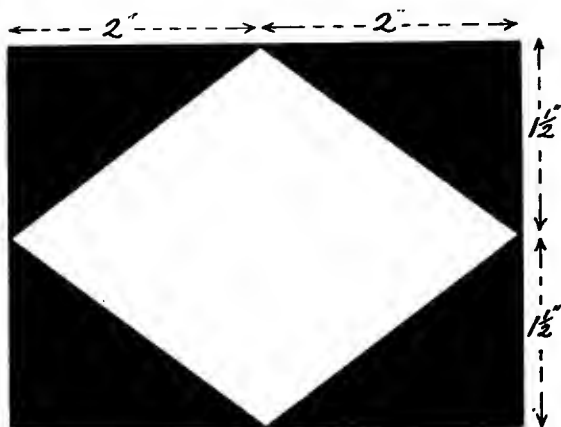


DESIGN 10.

On a background 4" square.
Prepare the triangles from 2" squares.

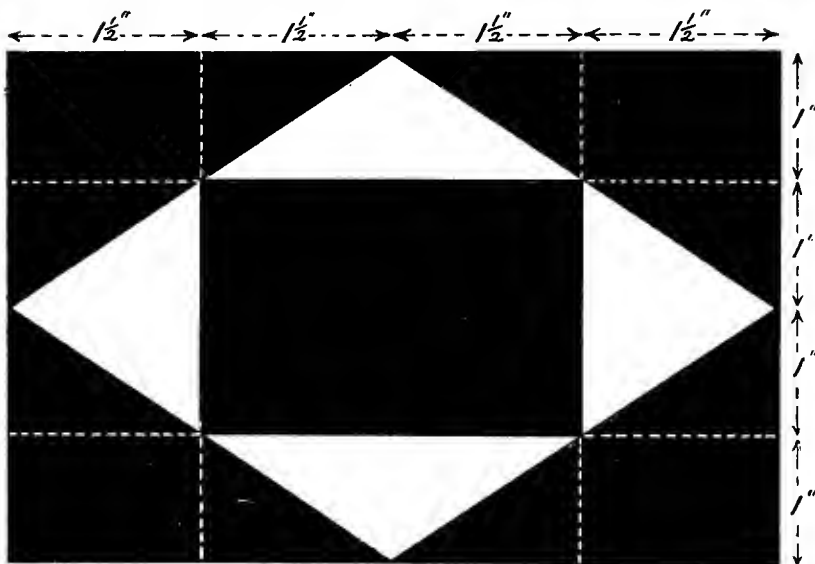


Designs 11 to 20.

**DESIGN II.**

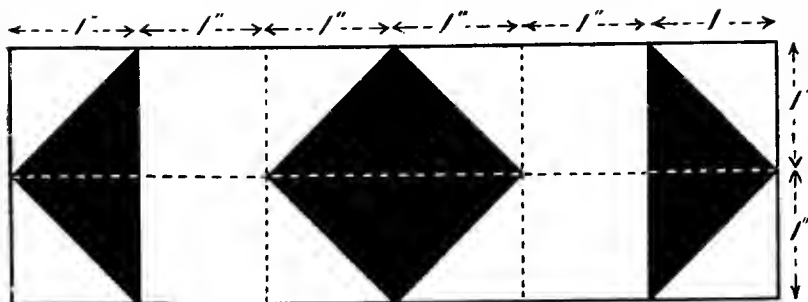
On a background 4" by 3".

Prepare the triangles from rectangles 2" by $1\frac{1}{2}$ ".

**DESIGN I2.**

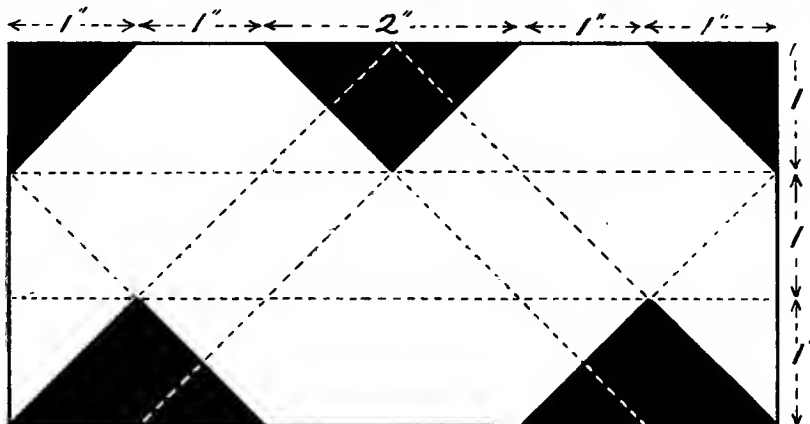
On a background 6" by 4".

Prepare the triangles from rectangles 3" by 2". Five pieces to be gummed on.



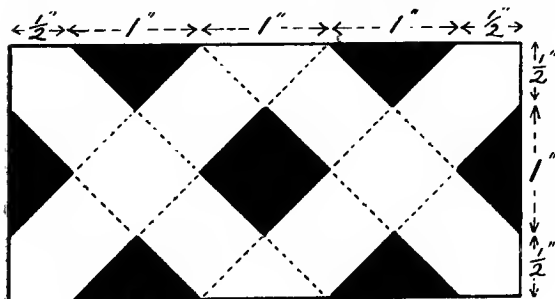
DESIGN 13.

On a background 6" by 2". Prepare the central square from a 2" square (as the dotted lines show). Another similar square, bisected, will give the two triangles



DESIGN 14.

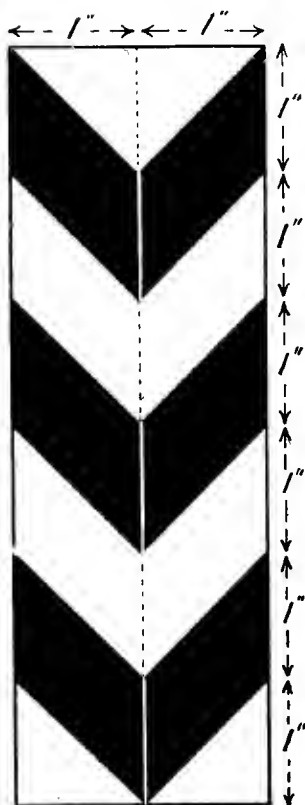
On a background 6" by 3". The dotted lines show the manner of marking-out the background. The larger triangles should be prepared as indicated in Design 13. The smaller triangles should be made from 1" squares.



DESIGN 15.

On a background 4" by 2".

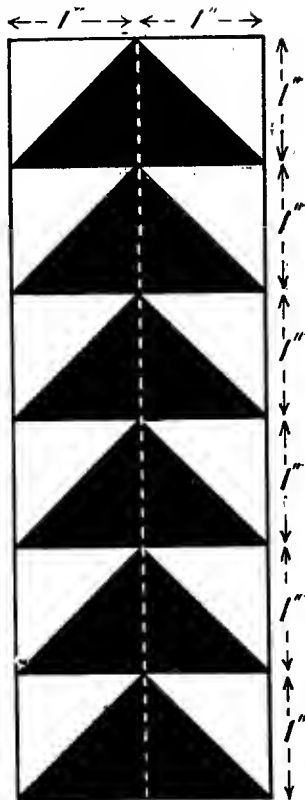
Prepare the central square and also the triangles by joining the middle points of the sides of 1" squares (see design 13).



DESIGN 16.

On a background 6" by 2".

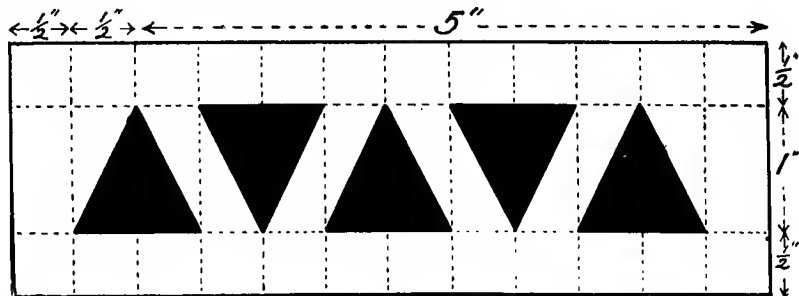
The six pieces to be gummed on may be prepared from a rectangle 4" by 2".



DESIGN 17.

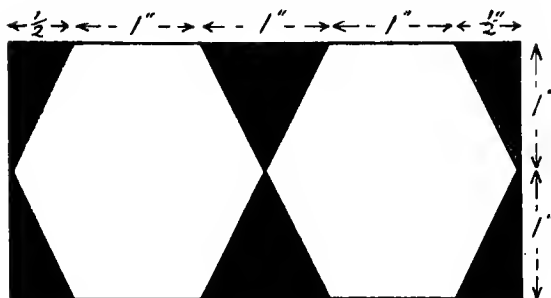
On a background 6" by 2".

The triangles may be made from rectangles 2" by 1".



DESIGN 18.

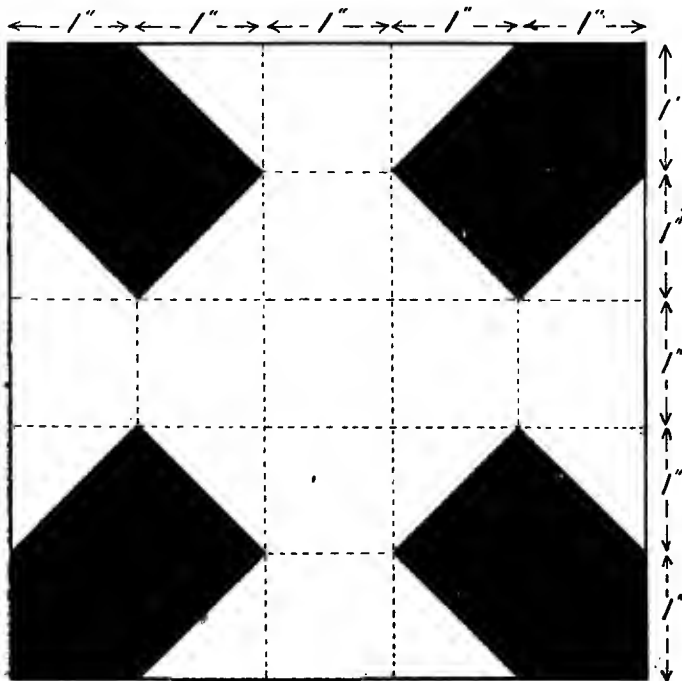
On a background 6" by 2". The triangles should be made from 1" squares.



DESIGN 19.

On a background 4" by 2".

The central triangles should be prepared as indicated in Design 18.
Similar triangles bisected will give the corner triangles.



DESIGN 20.

On a background 5" square.

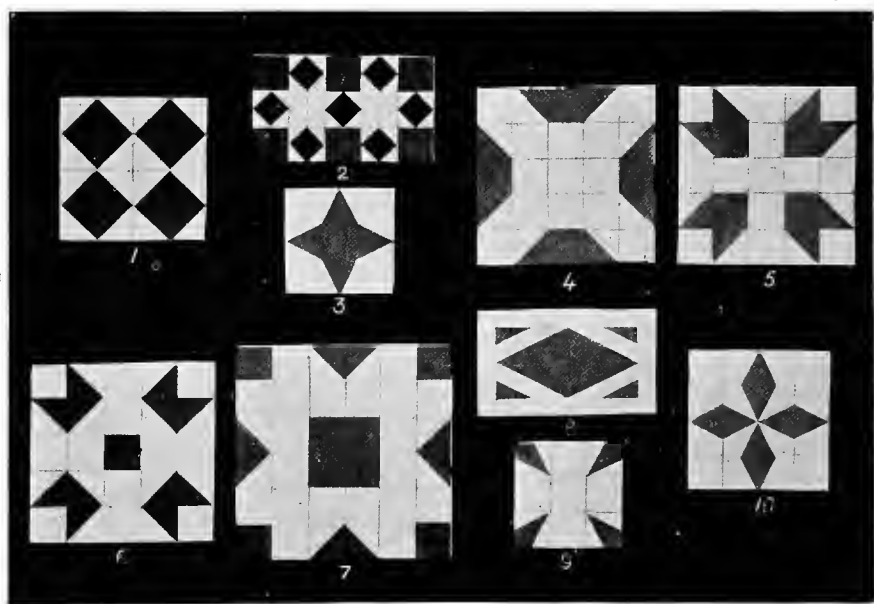
The pieces to be gummed on should be prepared from 2" squares,
by joining the middle points of the sides

DESIGNING IN PAPER. Scheme II.

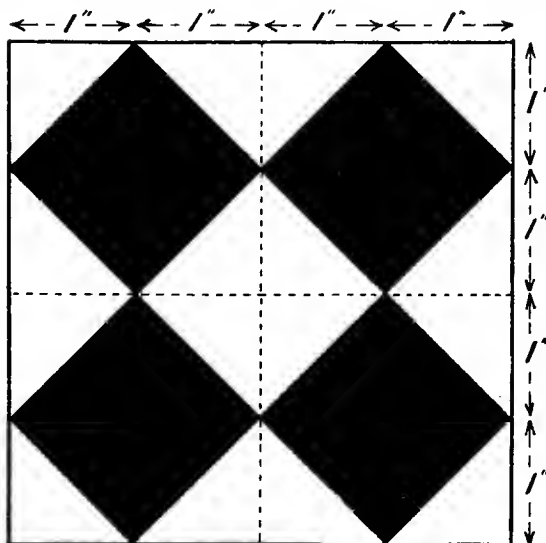
Introduction to Scheme.

See Introduction to Scheme I., page 158.

The dotted lines shown in diagrams denote the manner of marking-out the background.

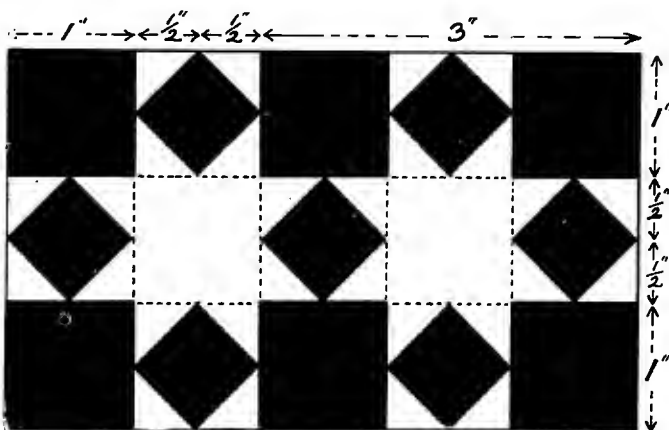


Designs 1 to 10.



DESIGN 1.

On a background 4" square. Prepare the portions to be gummed on from 2" squares, by joining the middle points of the sides.



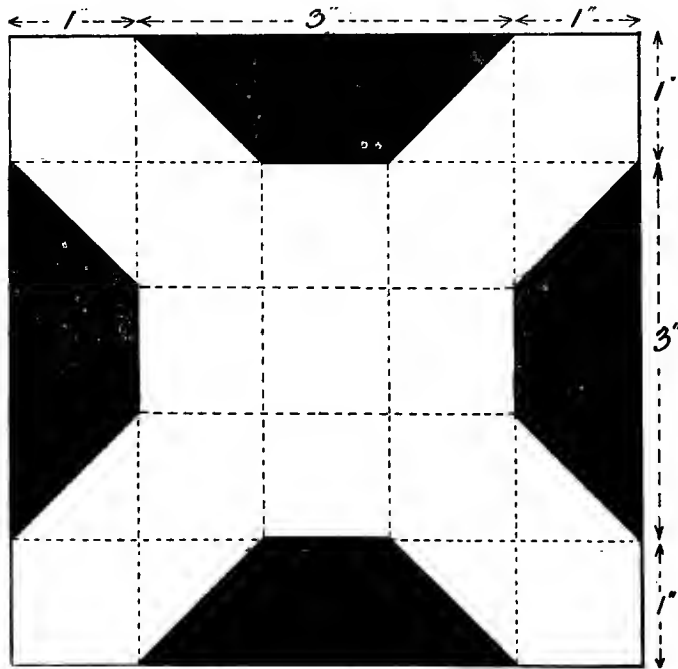
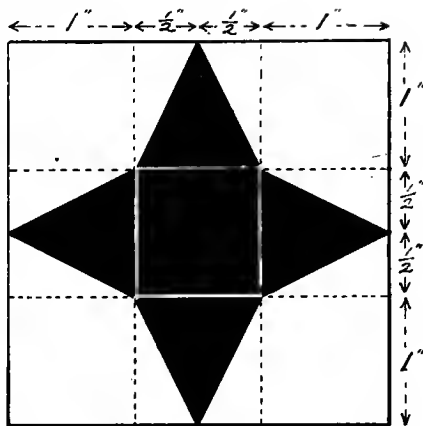
DESIGN 2.

On a background 5" by 3". Prepare the small squares from 1" squares as indicated in Design 1.

DESIGN 3.

On a background $3''$ square.

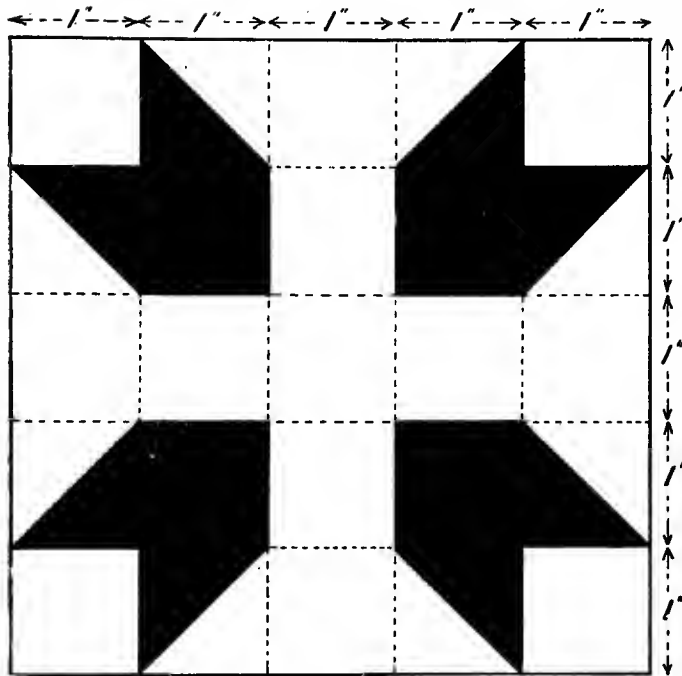
Prepare the four isosceles triangles from $1''$ squares.



DESIGN 4.

On a background $5''$ square.

Prepare the portions to be gummed on from rectangles $3''$ by $1''$.

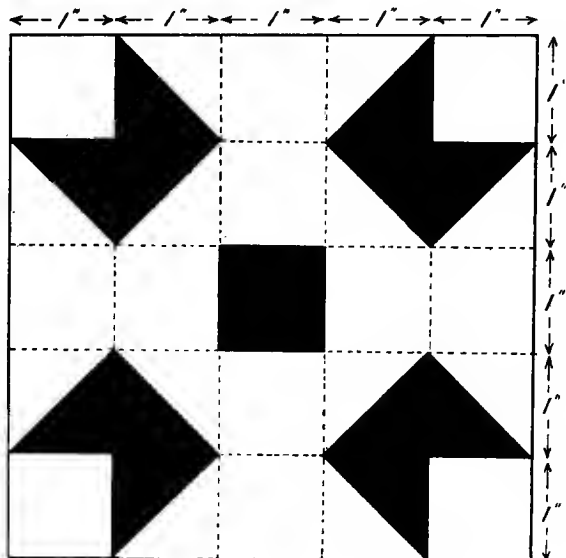


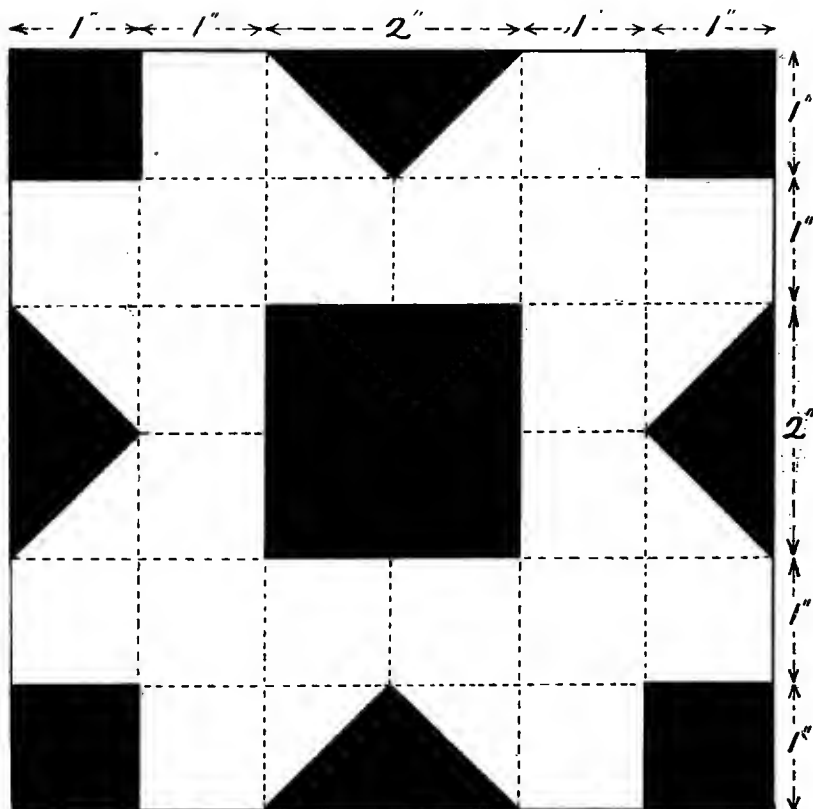
DESIGN 5.

On a background 5" square. Prepare the portions to be gummed on from 2" squares.

DESIGN 6.

On a background 5" square. See note to Design 5.

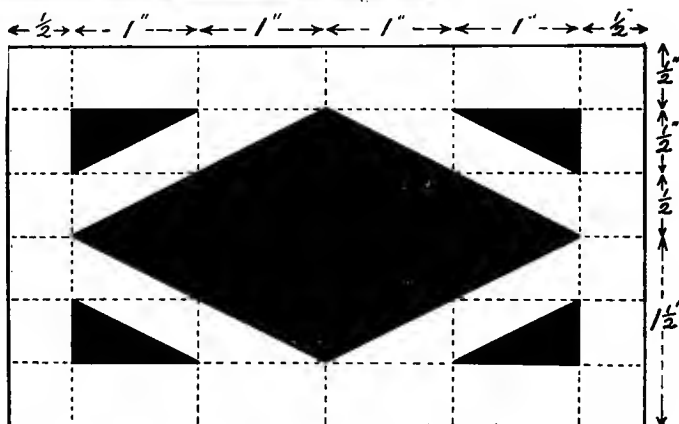




DESIGN 7.

On a background 6" square.

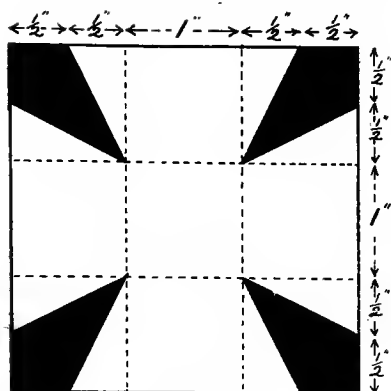
To make the triangular pieces to be gummed on, prepare squares as for Design 1 and bisect them.



DESIGN 8.

On a background 5" by 3".

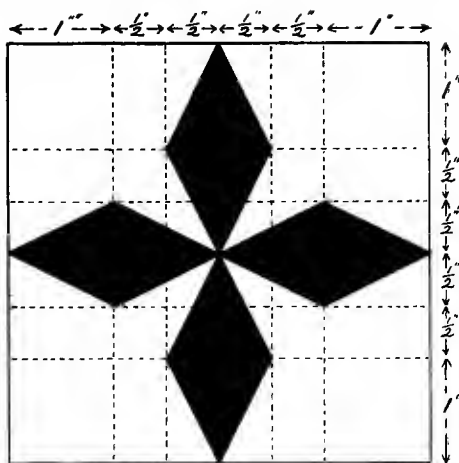
Prepare the centre from a rectangle 4" by 2", and the remaining portions from rectangles 1" by $\frac{1}{2}$ ".



DESIGN 9.

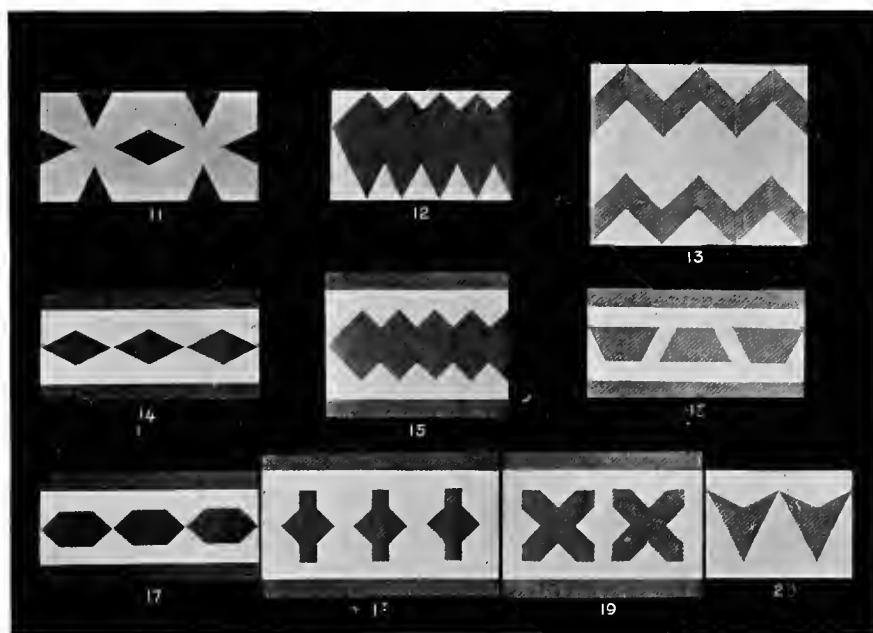
On a background 3" square.

Cut the portions to be gummied on from 1" squares.

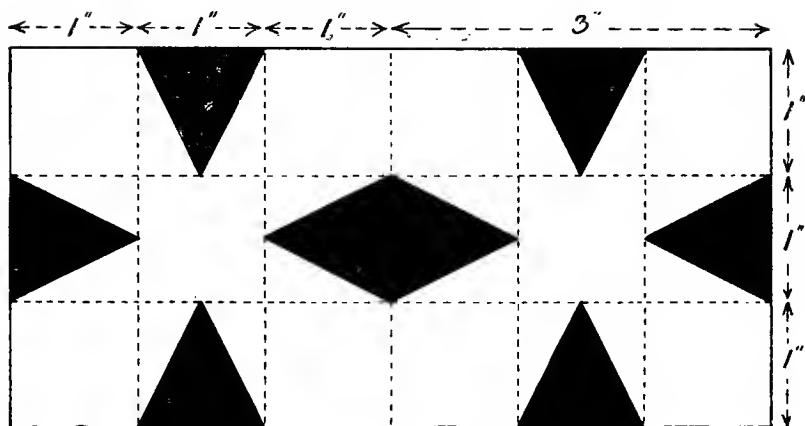


DESIGN 10.

On a background 4" square. Prepare the pieces to be gummied on from rectangles 2" by 1".

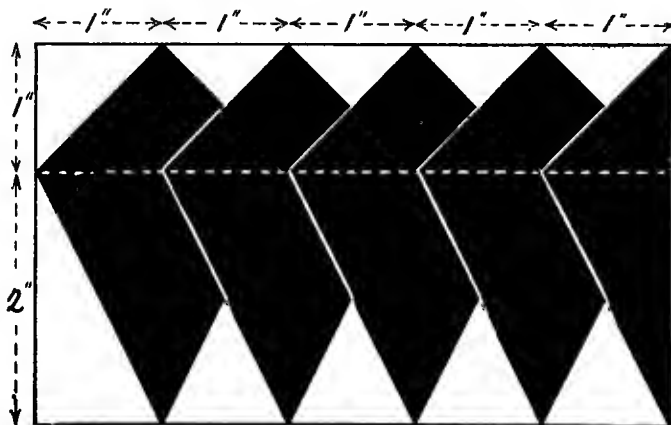


Designs 11 to 20.



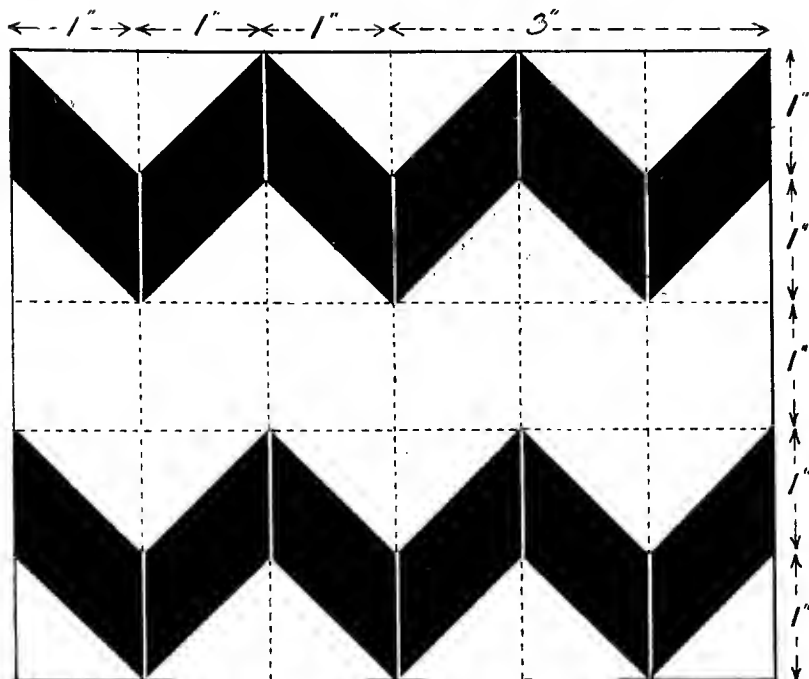
DESIGN 11.

On a background 6" by 3". Prepare the centre from a rectangle 2" by 1", joining the middle points of the sides. Similar pieces bisected will give the triangles.



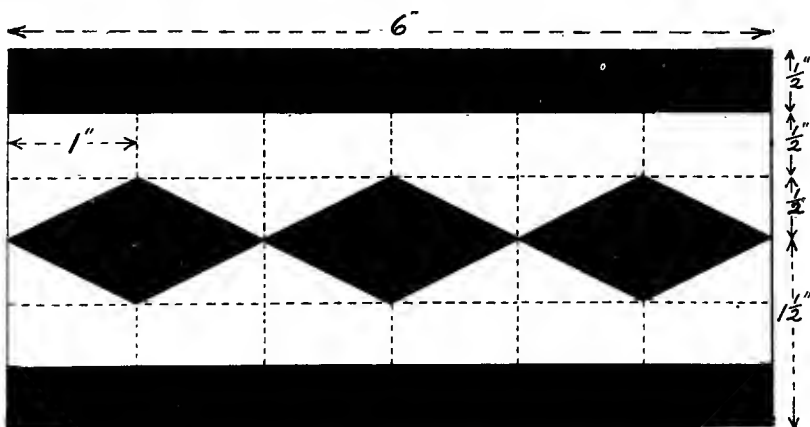
DESIGN 12.

On a background 5" by 3". The pieces to be gummed on should be prepared from rectangles 3" by 2". Fix the one on the left first, then add the next to partly cover the first, and so on. The fifth piece should be bisected, only one-half being required.



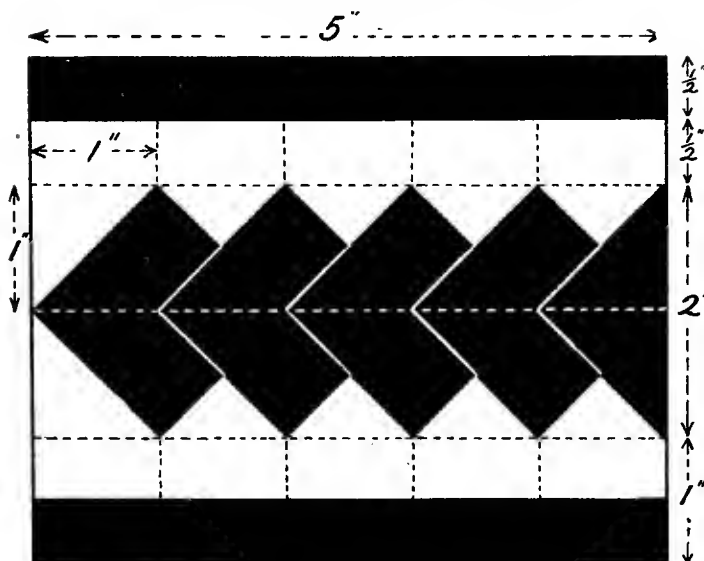
DESIGN 13.

On a background 6" by 5". The teacher should show the children how the pieces to be gummed on may be cut without wasting material.



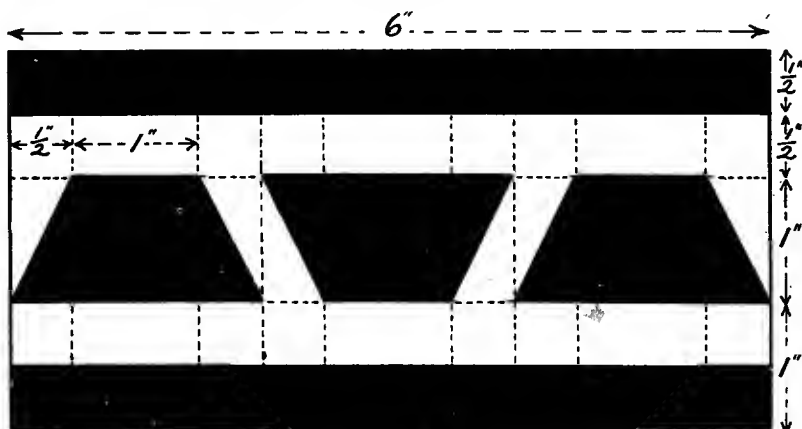
DESIGN 14.

On a background 6" by 3". The three parallelograms should be cut from rectangles 2" by 1". The top and bottom strips should be added last.



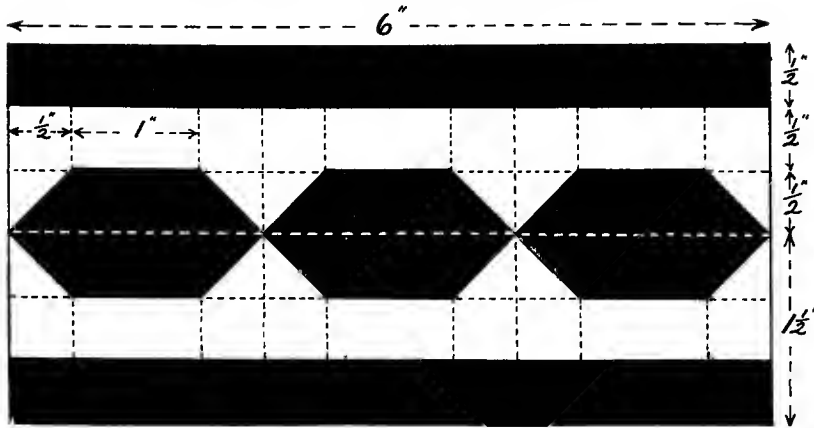
DESIGN 15.

On a background 5" by 4". Prepare the pieces to be gummed on as indicated in Design 1. These overlap as in Design 12.



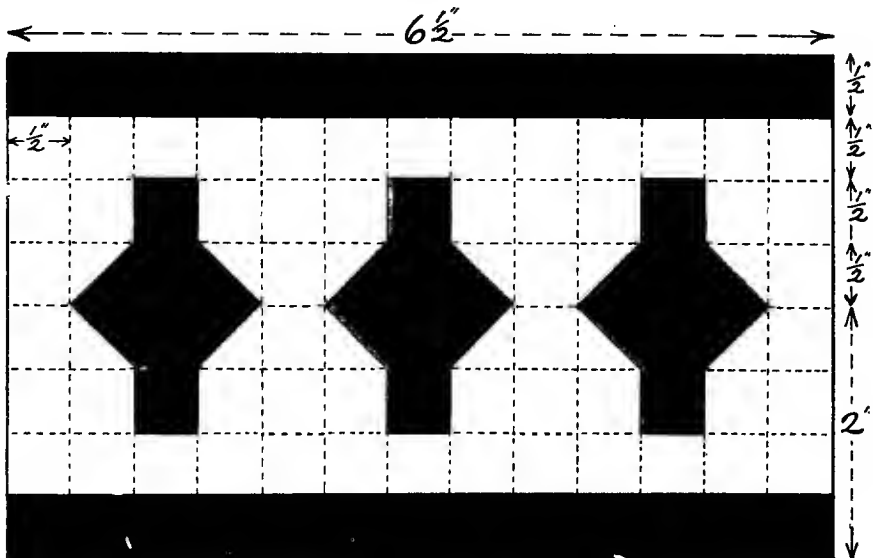
DESIGN 16.

On a background 6" by 3". Cut the three pieces to be gummed on from rectangles 2" by 1". Add top and bottom strips last.



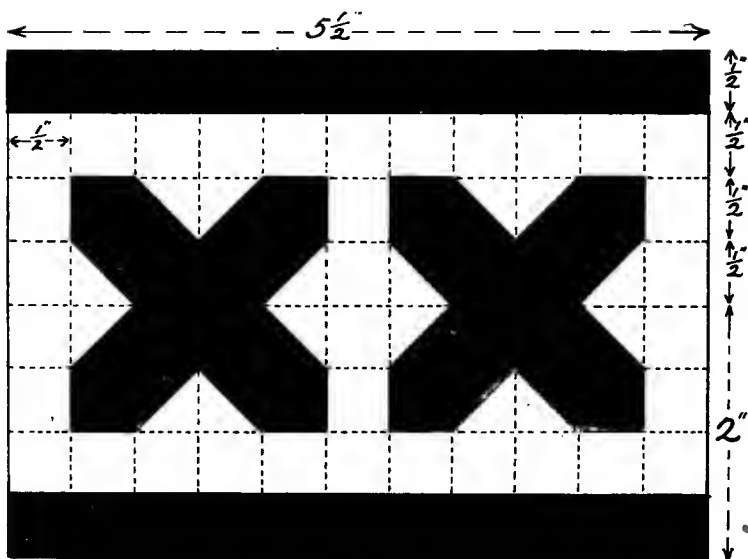
DESIGN 17.

On a background 6" by 3". Cut the three pieces to be gummed on from rectangles 2" by 1", as the construction lines show.



DESIGN 18.

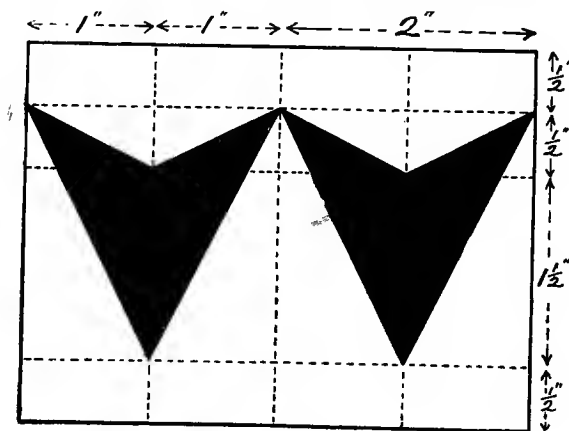
On a background 6 1/2" by 4". Cut the three portions to be gummed on from rectangles 2" by 1 1/2", as the construction lines show.



DESIGN 19.

On a background $5\frac{1}{2}$ " by 4".

Cut the two central pieces from 2" squares



DESIGN 20.

On a background 4" by 3".

Cut the pieces to be gummed on from 2" squares

A LIST OF
BOOKS AND APPARATUS
SELECTED FROM THE CATALOGUE OF
A. BROWN & SONS, LTD.

*Further particulars respecting these, and other
similar Specialities, will be gladly
posted free on application.*

THE “KELLAND” SYSTEM OF WOODWORK

A Manual for use in Infants' Schools, Kindergartens & Private Families

BY

JANET K. MORGAN,

Principal of Kelland College, Leicester.

80 pages, Crown 4to oblong, illustrated with many designs and strongly bound in Cloth. Price 3/- net.

WOODWORK forms a highly interesting and educative employment. The Authoress of this work, after twenty years' experience in educational work among little children, has here formulated a scheme of Woodwork which is thoroughly practicable and free from the objections and difficulties which have hitherto attended the introduction of this branch of technical education into the Kindergarten curriculum. The objects made are, in the main, toys and such things as are universally interesting to children. The tools required for the course are few in number, and very inexpensive. The wood is supplied ready cut to required lengths and thicknesses, the teacher or older children having only to cut off lengths. Each step is minutely described, and every difficulty explained. Full particulars are given as to apparatus, and Price Lists of the latter can, at any time, be obtained from the publishers.

*Copy of an unsolicited Testimonial received from H. MAJOR, Esq., B.A., B.Sc.,
Inspector of Schools, Leicester :—*

“I have great pleasure in bearing testimony to the value of the ‘Kelland’ Woodwork, which is founded on the best German methods adapted to English Kindergarten and Secondary Schools, with original features of the Author's special devising, which adds considerable interest and value to the work. The methods are so simple that no knife is required, and hence the work is absolutely safe for the small fingers that do it. It is a book founded on true educative principles, and has been put into practical shape in a College of great repute in this town, and can hence be confidently recommended for adoption elsewhere.”

LONDON : A. BROWN & SONS, LTD., 5 FARRINGTON AVENUE, E.C.
And at HULL and YORK.

BROWNS'

CARDBOARD MODELLING

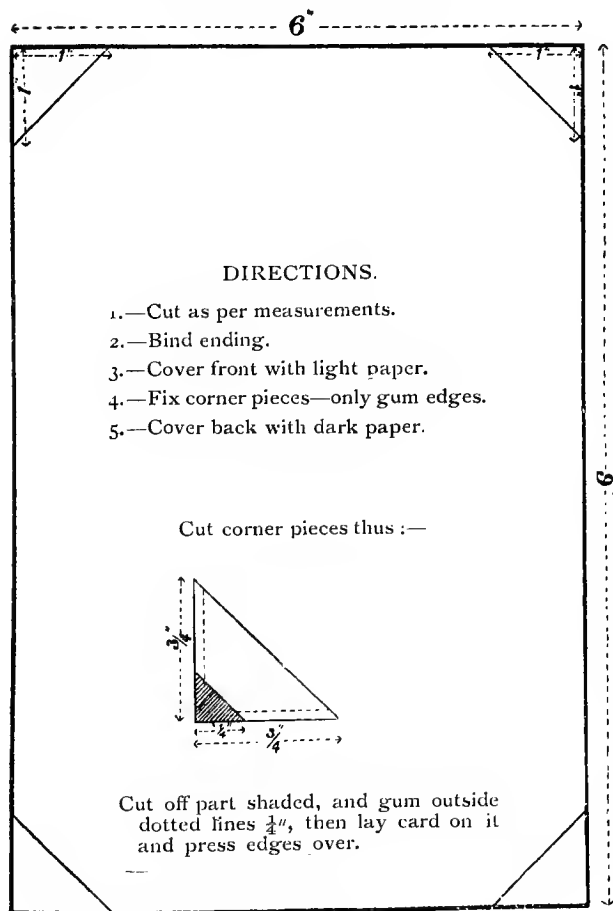
(SLOYD)

A very educative and attractive occupation. In two Packets.

No. 1—Junior Packet, 2/- net.

No. 2—Senior Packet, 2/- net.

BLOTTING PAD—Half Size.



The above is a Specimen Design from the Junior Packet.

EACH packet contains 36 Cardboard Diagrams with full printed directions as to cutting out, binding and covering the various designs. The objects, when completed, form such articles as Photo Frames, Draught Boards, Key Labels, Lamp Shades, Trays, Mats, Glove Boxes, etc , etc.

Extracts from Press Opinions.

"Teachers only require to see them to adopt them."

"An admirable series of exercises. . . . Where this subject is taught, the cards will be found of very great service."

"These cards will provide children with an interesting and useful occupation."

"Each card gives directions for the careful completion of the model, with scissors, paste and cardboard, and we can highly recommend them."

LONDON: A. BROWN & SONS, LIMITED, 5 FARRINGTON AVENUE, E.C.
And at HULL and YORK

APPARATUS

For use in connection with

EFFECTIVE PAPER-CUTTING

By ANITA and HENRIETTA WAITE

THE "FARRINGDON" SERIES OF GUMMED COLOUR-PAPERS has been specially selected by the compilers of the EFFECTIVE PAPER-CUTTING MANUAL to suit the designs contained in their book. These papers have been made in eighteen different shades; the size is 4 in. by 4 in., and they are obtainable in convenient packets as described below :—

Packet A contains 250 squares of Dull White.				1/3 net.
"	B	"	"	Assorted Dull Black (B 1) and Bright Black (B 2).
"	C	"	"	1/3 net.
"	D	"	"	Brown.
"	E	"	"	Assorted Dark Green (D 1) and Light Green (D 2).
"	F	"	"	1/3 net.
"	G	"	"	Assorted Dark Heliotrope (E 1) and Light Heliotrope (E 2).
"	H	"	"	1/3 net.
"	I	"	"	Assorted Dark Blue (F 1) and Light Blue (F 2).
"	J	"	"	1/3 net.
"	K	"	"	Assorted Dark Orange (G 1) and Light Orange (G 2).
"	L	"	"	1/3 net.
"	M	"	"	Assorted Dark Red (H 1), Medium Red (H 2) and Light Red (H 3).
"	N	"	"	1/3 net.
"	O	"	"	Assorted Dark Yellow (J 1), Medium Yellow (J 2), Light Yellow (J 3).
"	P	"	"	1/3 net.
"	Q	"	"	Assorted of the eighteen different shades.
"	R	"	"	1/6 net.

THE "FARRINGDON" PAPER-CUTTING SCISSORS are strongly recommended.

H 224	Best Steel, with round ends,	4½ in.	4/6 net.	per doz. pairs.
H 225	Do.	pointed	4½ in.	3/6 " "
H 226	Do.	pointed	3½ in.	2/10 " "
H 227	Wire Scissors, pointed or round ends,	1/- net	per doz. pairs.	

THE "FARRINGDON" SCHOLARS' CHALK DRAWING BOOK, for mounting the designs. Forty-eight pages of coloured paper interleaved with tissue. Twelve shades assorted, size 11 in. by 7 in., 1/8 net per doz.

THE "FARRINGDON" PACKET OF CHALK DRAWING PAPERS, ASSORTED PACKETS, contains 100 sheets, size 11 in. by 7 in., 12 assorted shades, 10d. net per packet.

Packets of one shade only. Packets containing 100 sheets of one shade only have also been prepared. In ordering, care should be taken to quote the shade number which appears on every sheet of paper sent out. The size of these sheets is 11 in. by 7 in., 10d. net per packet.

Demonstration Sheets. Any shade may be had separately in full size, or assortments can be made to suit customers' requirements. 1/6 net per quire.

THE "FARRINGDON" SCHOLARS' BOX OF TWELVE DIFFERENT COLOURED CHALKS should be used. The chalk parts of the original designs were entirely done with "Farringdon" chalks, and teachers should insist on being supplied with this particular box of chalks, as there is no other make at a moderate price that contains such choice and essential colours, or is so well suited for general school use. Every box is sent out distinctly labelled. The price in cardboard boxes is 1/8 net per doz. boxes, or in nicely finished metal boxes, 2/6 net per doz. boxes. A gross of any one colour of the Chalks can also be had in a strong wood box at 1/8 net per box.

THE "FARRINGDON" TEACHERS' BOX OF DEMONSTRATION CHALKS, containing 100 sticks assorted of the following colours :—Black, dark blue, light blue, brown, dark green, light green, orange, pink, red, violet, yellow. These shades are the same as those contained in the Scholars' box described above. 2/- net per box.

LONDON: A. BROWN & SONS, LTD., 5 FARRINGDON AVENUE, E.C.

And at HULL and YORK.

EFFECTIVE PAPER-CUTTING

The making of Pictures for Conversational and other Lessons

By ANITA and HENRIETTA WAITE

Compilers of "Chalk Drawing for every Season," "Brushwork practically explained," etc.

This book contains 72 Demy 4to pages, beautifully produced in upwards of sixty different printings, and strongly bound in Art Vellum Cloth. Price 5/- net.

"EFFECTIVE PAPER CUTTING" is suitable for use in the lower standards of Boys' and Girls' Schools, and the upper classes in Infants' Schools.

The method of the book is so convincingly simple, and yet so interesting and instructive, that teachers will find both pleasure and practical value by introducing it into their Schools.

The Book is so well graduated, that the very first attempts at cutting are utilised and presented in some familiar and pleasing form.

Every example in the book is a suggestion for many others which might be worked out on exactly similar lines. The child's desire "to create" is aroused. Its self efforts and powers of invention are encouraged and stimulated. All aimless and wasteful cutting is discouraged, and great economy of material and arrangement is practised (so useful to girls when cutting out garments for needlework).

The difficulties of cutting have been reduced to a minimum. Everything has been worked out in the simplest way, and whilst no minute measurements are required, the children become familiar with common proportions, e.g., halves and quarters of the whole.

Each exercise has three distinct features. First the construction of the objects, then the formation or "expression" of a picture with these objects, and finally the suggestion of a subject for story lessons or composition.

The coloured plates are so beautifully printed that the objects represented appear as if cut out in paper and stuck upon the page. The difference between the Chalk touches and the cut pieces of paper is clearly indicated.

Paper Cutting is now becoming so generally taught in our Schools, and by using the safe scissors, with rounded points, teachers need not hesitate to introduce this valuable occupation even amongst the youngest children.

LONDON: A. BROWN & SONS, LTD., 5 FARRINGTON AVENUE, E.C.
And at HULL and YORK.

BRUSHWORK PUBLICATIONS

By ANITA and HENRIETTA WAITE

BRUSHWORK PRACTICALLY EXPLAINED.

By HENRIETTA WAITE. The Book contains 80 demy 4to oblong pages, 38 of which are fully coloured, tastefully bound in Art Vellum, 5/10 net.

Many of the Brushwork Books published are really only a set of painted designs with instructions, such as an experienced painter could follow, but these do not meet the requirements of Teachers who are totally unaccustomed to handling paints. This book meets the want for a handbook to teach Teachers the most satisfactory method of introducing this popular occupation into their Schools, and for this purpose alone will be found invaluable.

BROWNS' No. 1 SET BRUSHWORK CARDS.

By HENRIETTA WAITE. A Series of Designs from Japanese Objects. 24 different Cards in a packet, beautifully printed in Colours, size 7 in. by 7 in., 2/- net per packet.

The above Designs form excellent copies for practice, and are especially adapted for gaining accuracy and freedom of touch, while working on guide lines before proceeding to actual flower painting.

BROWNS' No. 2 SET BRUSHWORK CARDS.

The Tinted Background Series, by ANITA AND HENRIETTA WAITE. 20 different Cards in a packet, exquisitely lithographed in Colours, size 11 in. by 7½ in., 2/6 net per packet.

These Cards advance gradually from BROWNS' No. 1 SET. They afford practice in both Brushwork and Colour-wash, and introduce new difficulties in the shape of Flat Tints, Broad Washes, and more advanced copies of Flowers, Fruit, Seaweed, etc. In every case the suitability of the copies has been carefully tested.

BROWNS' No. 3 SET BRUSHWORK CARDS.

By ANITA AND HENRIETTA WAITE. The Seascape Series. 20 different Cards in a packet, printed in Colours, 11 in. by 7½ in., 2/6 net per packet.

Ships and Sea Scenes always make fascinating copies for Drawing and Painting. This Seascape Series continues the Broad Washes, Flat Tints, etc., in more advanced forms, including light and shade in background and foreground work. Each copy is painted in one colour only. This, while providing complete change from the two previous sets, trains the eye in graduation of tones of the same colour, and arouses the artistic taste for Monochrome Paintings.

LONDON: A. BROWN & SONS, LTD., 5 FARRINGTON AVENUE, E.C.

And at HULL and YORK.

CHALK DRAWING PUBLICATIONS

By ANITA and HENRIETTA WAITE

BROWNS' No. 2 SET CHALK DRAWING CARDS

AIDS TO DRAWING FROM ACTUAL OBJECTS

Twenty Cards in each packet, size 11 in. by 7½ in., all finely printed on colours one side, with full instructions as to apparatus on the reverse side. 2/6 net per packet.

These Cards are not intended to be used as flat copies. The child should first express his own unaided impression gained directly from this object. This representation is generally very crude in form, but it is this unaided work which helps the Teacher to see how and where correction and guidance are needed.

The child may be able to realise that his drawing is imperfect, compared with the actual object, but he does not know how to correct or improve his first attempt, and he should not be left without aid.

By means of BROWNS' No. 2 SET CHALK DRAWING CARDS, the Teacher can show a correct impression gained from the actual object, and guide the children to correct their own imperfect impressions.

The Designs are :—Basket, Bottle of Ink, Candlestick and Lighted Candle, Candlestick and Matches, Chalks in Box, Cups, Cups Inverted, Fan, Hand Bell, Hand Brush, Jugs, Lamp, Medicine Bottle, Paste Pot, Reels of Cotton, Shoe, Tambourines, Tumbler and Glasses, Turpentine Bottle, Vase.

A MANUAL OF CHALK DRAWING

FOR EVERY SEASON—AN AID TO NATURE STUDY

80 Demy 4to pages, beautifully produced in colours by 55 printings, and approximately bound in Art Vellum, 5/10 net.

The Aim of the Compilers of this important Manual has been to arrange for lessons in accordance with the season of the year and the general surroundings of the child, in order that the interest in the drawing may be greater and the result more expressive when the actual realities are within reach at the time, also that there may be that connection between lessons in season, which is so essential in a Nature Study course for the year.

BROWNS' No. 1 SET CHALK DRAWING CARDS

Twenty Cards in each packet, size 11 in. by 7½ in., all finely printed in colours on one side, and full instructions as to apparatus on the reverse side. 2/6 net per packet.

These Cards have been designed primarily to supply a want for additional copies to those contained in the Chalk Drawing Manual described above. They are, however, quite complete in themselves, and provide a series of interesting studies for the four seasons of the year, as shown below.

The Designs are :—WINTER SERIES—Winter Scene, Mistletoe, Chinese Lanterns, Black Cat, Owl. SPRING SERIES—Narcissus, Wild Hyacinth, Cultivated Hyacinth, Spring Scene, Swallows. SUMMER SERIES—Pinks, Swan, Cherries, Tomatoes and Cucumber, Steamer. AUTUMN SERIES—Lighthouse, Sunflowers, Clematis, Corn Stack, Plums.

LONDON : A. BROWN & SONS, LTD., 5 FARRINGDON AVENUE, E.C.

And at HULL and YORK.

BROWNS' No. 1 SET "SAVILE" SERIES OF

COLOURED ILLUSTRATIONS

Consisting of twelve Illustrations, mounted on stout boards, 25×20 inches, eyeletted and strung ready for hanging up on blackboard or easel, neatly packed in strong leather-board case, 12/6 net the Set.

Comprises:—Apple, Pear, Cherry, Primrose, Snowdrop and Crocus, Dandelion, Poppy, Various Leaves, Corn and Cornfield, Carrots and Turnips, Butterfly (including Caterpillar, etc.), Bees and Hives.

These Magnificent Illustrations have been printed in fifteen colours; and are beautifully true to Nature. They show, in separate sections, all details, such as the Pistil, Seed-pod, Petals, Blossom, etc., as the case may be. The Tinted Brown Background extends to extreme edge of Chart, thus doing away with a white border and causing the Illustrations to stand out so boldly and effectively that the Colours, Outline, and Detail are perfectly distinguishable to a large class.

BROWNS' No. 2 SET "SAVILE" SERIES OF

COLOURED ILLUSTRATIONS

Consisting of twelve Illustrations, Beautifully Printed in Colours, and Mounted on Stout Boards. Size 25×20 inches, eyeletted and Strung ready for hanging up on Blackboard or Easel, and neatly packed in Leather-Board Case. 15/- net the Set.

The twelve Illustrations in No. 2 Set are:—Daffodil, Scarlet Runner, Rose, Wild Rose, Sweet Pea, Buttercups and Daisies, Strawberry, Tomato, Common Gull, Thrush, Herring, Christmas Tree.

This No. 2 Set, like its predecessor, has been produced in an original and highly effective style, quite away from anything else now before the Teaching profession.

Each of the Designs stands out strongly and impressively on a dark green background. For Nature Study lessons, Brush Drawing, etc., the Set is practically indispensable.

BROWNS' No. 3 SET "SAVILE" SERIES OF

COLOURED ILLUSTRATIONS

Consisting of twelve Illustrations, beautifully printed in colours, and mounted on Stout Boards, size 25×20 inches, eyeletted and strung ready for hanging up on Blackboard or Easel. 15/- net per Set.

The twelve Illustrations in the No. 3 Set are:—The Kingfisher, the Robin, the Tawny or Brown Owl, the Hedge Sparrow, the Corn Crane, the Yellow Wagtail, the Vine, the Tulip, the Purple Iris, the Madonna Lily, the Potato, Lobster and Crab.

The Illustrations are printed on a dark green background, and besides forming most artistic wall decorations, they are of great value in Nature Study, Brush Drawing, and other lessons.

LONDON: A. BROWN & SONS, LTD., 5 FARRINGDON AVENUE, E.C.
And at HULL and YORK.

